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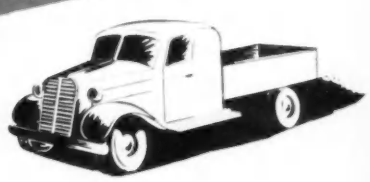

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LOOKING AHEAD
... with the Editor

THE growth of cooperatives in the oil industry is progressing steadily. Comparisons show that during the past few years, this type of enterprise has grown about ten times faster than privately-owned companies. The oil cooperatives have already announced expansion plans for the postwar period, which, if carried out, will put them into operation on a world-wide basis.

Legislation favoring this activity is strongly entrenched on the statute books in Washington, and present indications point to further encouragement for these cooperatives by the government.

Gross taxation inequities exist, according to students of the problem, which, if allowed to continue, will make it increasingly difficult for private concerns to compete with such subsidized organizations.

The theory of cooperative endeavor is not opposed, but special exemption from taxation that is borne by private industry should be imposed on these cooperatives also, it is contended.

Joseph F. Leopold, of the National Tax Equality Association, of Chicago, reviews the entire situation as it applies to the oil industry in a paper, "Can You Stay in the Oil Business in Competition with the Co-ops?" His discussion which makes use of the latest research on the question, will appear in an early issue.

THE OIL WEEKLY

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Contents . February 12, 1945
Volume 116, No. 11

The Changing Panorama 21

Technical and Feature Articles:

Problems in Measurement of Wet Gas 30
By T. C. SHAW

Oil Deterioration 38
By THELL C. WOODS

Substituting Adjustable Runway for Rat Hole Lowers Drilling Costs 41

British Use Time-Saving Drilling Methods 44
By DON L. CARROLL

Operating Hints for Drilling Crews 48

News and Departments:

Looking Ahead with the Editor 19

Washington Roundup 25
By BERTRAM F. LINZ

Markets, Statistics and Prices 55

Pipe Line Review 56

International Developments 58

United States Field Operations 61

United States Exploratory Completions 75

United States Wildcat Starts 76

Squeaks from the Bull Wheel 78

Notes for the Equipment Buyer and User 79

Index to Advertisers 80

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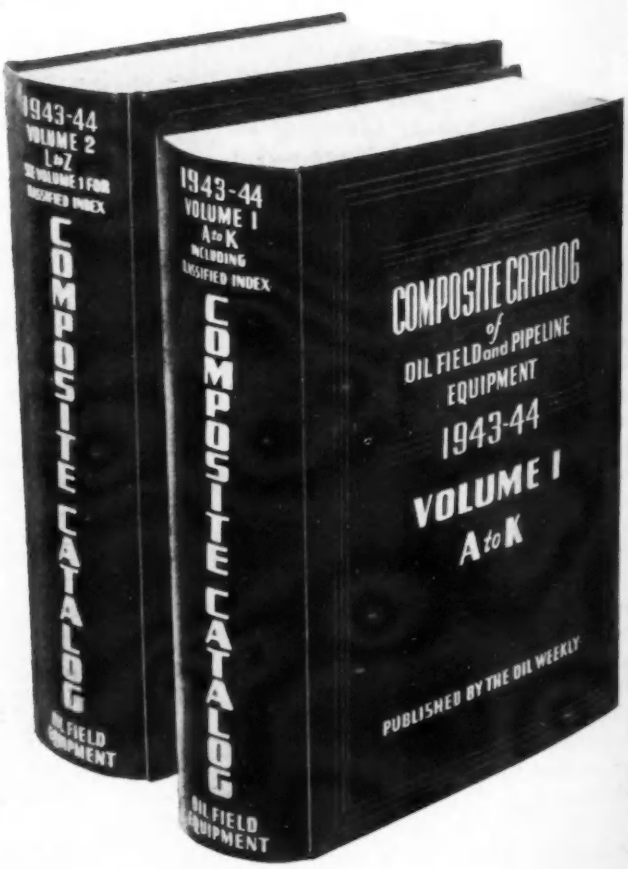

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The Changing Panorama

Two More Years for Rubber Development

THE new synthetic rubber industry of the United States probably has two more years in which to prepare for postwar competition with natural rubber for markets. During the past two years remarkable progress has been made in synthetic rubber. The general characteristic of the advancements has been better products at lower costs. With two more years, the new industry may so perfect itself—especially when more research men become available—that it will be able to compete on equal terms in every way with natural rubber.

It is unlikely that the East Indies and Malaya will be reconquered before late 1945 and perhaps even 1946. Then it is problematical whether the region can immediately return to full scale production of rubber. If fighting continues in the Pacific, there may be a scarcity of boats to limit shipping. The condition of plantations, docks, etc., also will be a factor in determining how quickly natural rubber returns to the market. During the first year, the quantity likely will be limited.

Man-Hours and the New OPA Oil Form

IT WOULD be interesting to know how much money has been spent by members of the oil industry on trips to Washington to confer with first one agency and then another about crude prices. It would be even more to the point to find out how many man-hours have been wasted by government first, and industry second at the insistence of government, in accumulation of evidence bearing on the problem.

And still the process goes on. The new cost form to be sent to 500 producers, is another and let us hope final attempt by OPA to determine whether crude oil price ceilings are adequate or if an industry-wide increase is needed. It will include 30 questions. Comparisons of both earnings and the cost of finding and developing properties in 1941, 1942, 1943 and 1944 with the base period, 1936 to 1939, will be sought.

In a very real sense, our past successes have been paced by the great productive effort on the home front. They have been won through maximum cooperation between the assembly line and the firing line. It is imperative that this fine teamwork continue to the end of the struggle.

We must now redouble our efforts, for only by sustained hard work and hard fighting can we hope to shorten the war.

—ERNEST J. KING,
United States Fleet Admiral.

Tubular Goods Situation Better

LATE developments, following conferences between PAW and WPB officials, indicate more tubular goods will be delivered during the second quarter of this year than anticipated heretofore. This means the industry will be able to meet the drilling program set up by PAW for the second quarter, without dipping into emergency stocks. It also means that a large back-log of orders will not accumulate, which would delay deliveries on orders placed for the third and fourth quarters of the year.

It is now hoped that deliveries will lack only 25,000 tons of reaching the 287,000 tons of tubular goods needed to drill the 6900 domestic wells projected for the second quarter by PAW. Previously, it was feared second quarter tubular goods deliveries would aggregate only 142,000 tons, or 145,000 tons short of the amount needed, which would have been enough for only 3400 wells.

However, the situation is still in a state of flux. An increase in military requirements for bombs and other material that can be manufactured in tubular mills can still change the picture overnight.

The improvement in tubular goods outlook, of course, does not mean that oil companies can place orders for additional material for delivery in the second quarter. Company orders covering the full amount of tonnage, already have been received, and practically all the quantity has been given an approval countersignature by PAW.

☆

Anticipating great advances in the development of production, distribution and utilization of gas as fuel, gas utility companies throughout the nation have recently underwritten an expanded program of industry research, national advertising and general promotion, calling for an expenditure of $1,400,000 a year for three years.

A Tail That Now Wags the Dog

SYNTHETIC chemistry as applied to the petroleum industry in the prewar period was a rather small tail on the chemical industry dog, but today that tail has become so large that it is beginning to wag the dog. Which is another way of saying that the petroleum industry has become during the war a larger volume manufacturer of synthetic organic chemicals than is the chemical industry itself, according to Dr. Robert E. Wilson, new chairman of the board of Standard Oil Company (Indiana).

Specific chemicals derived from the petroleum industry, as pointed out by Wilson include: Butadiene, now being synthesized at the rate of about 8000 barrels a day; ethyl alcohol of which about 130,000 barrels per day are produced from an alkylate made from two simple hydrocarbons; and 100-octane gasoline constituents if we include the new type of molecules which are produced by isomerization and catalytic cracking. All these are being produced in considerable excess of prewar amounts, and are coming from petroleum.

Production of these synthetic chemicals has resulted in technological development that is bound to be the basis for various new industries when the war is over.

Oil Keeps Up With Agricultural Market

OIL companies throughout the Middle-west are alert to the importance of keeping up with the agricultural market for their products. Indicative of the scope of efforts being exerted in this direction is the special session of the University of Illinois tractor short course which was conducted recently for oil company executives.

Objectives of the course were: to acquaint executives with the fundamentals of tractors and implements in which farmers are interested in order to keep food production tools operating, and to show how one of the nation's greatest agricultural colleges conducts tractor short courses so this type of training

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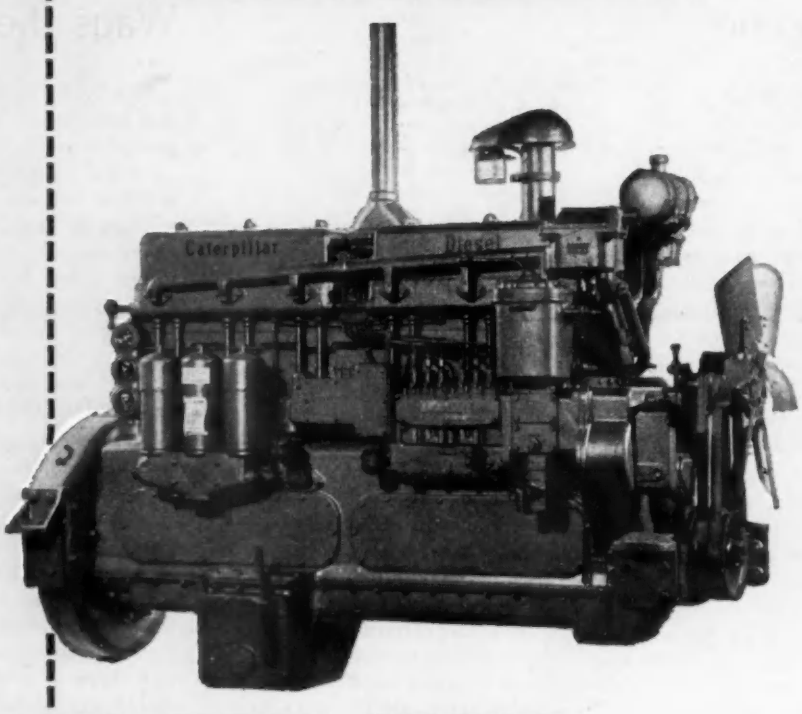

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may be furthered in other parts of the country.

Results of the course are anticipated in improved oil company programs on petroleum product utilization to aid farmers in meeting 1945 food production goals, and in future programs for better service to farm customers.

The special course was instigated by oil company requests for information concerning enrollment of executives in regular sessions. A canvass of leading agricultural colleges throughout the nation disclosed that similar type of training was not generally available. The course was sponsored by The Chek-Chart Corporation, of Chicago.

Auto As Factor in Industrial Progress

THE automobile is like our yeast element in bread. It creates new jobs, new highways, new civic developments, new educational opportunity, new public health developments,—in short an expanding democracy through expanding acquaintance with people and expanding knowledge. Thus, Ward M. Canady, chairman of the board, Willys Overland Motors, Inc., places the automobile as a factor affecting our industrial progress after the war.

"Unquestionably mechanization of travel is stirring the imagination of the world," he says. "Lack of money, lack of medium of exchange will slow development and delay the acquisition of motive power in many parts of the world, but I believe this will be speeded greatly after the war. One of the greatest causes of wars is the inequality of opportunity of peoples. Everybody in the world likes to ride in an automobile. Countries all over the world are recognizing that new agricultural wealth can be created by automotive power. Just as politically the individual freedom of people is a spreading crusade, so the freeing of people through the motive of transportation is creating a constant and increasing demand for the automobile. The limit will not be in sight in our time."

"The jeep," Canady emphasized, "apparently has aroused the affectionate emotion of the world. Designed for a simple war mission, it has spread into the hearts of the entire Army, and is the most widely used of any vehicle in the war. It promises to play the same role in peace. There seems to be no limit to the suggestion of its practicability. Fundamentally, it looks as if it will become the tireless utility vehicle wherever work is done."

Drilling Handicapped By Shortage of Mud

THE industry's drilling operations are being delayed and in some instances actually jeopardized by the shortage of drilling mud which has developed in recent weeks. There have been a few cases of wells almost blowing out due to insufficient mud materials to keep drilling fluid in proper condition. A number of companies have had to resort to borrowing from other operators. Fortunately, most concerns have cooperated in this respect.

The shortage, with one exception which was quickly cured, is due entirely to a lack of freight cars, a situation directly traceable to the transportation snarl created by severe winter weather in northeastern United States plus heavy movement of military goods. Inability to move products from mills has caused factory stocks of mud to pile up to such an extent storage bins are running over, and several mills now are working only part time. Meanwhile, field stocks are down to zero in contrast with 25,000 tons normally.

Unless the situation improves quickly, there will be further slowing down of drilling and an increased danger of losing some wells due to blowouts. However, progress has been made in meeting the problem, and if the nation is favored with a spell of good weather the transportation picture will change.

Mud companies are doing all they can. They are pursuing all available freight cars and then speeding shipments to field locations. PAW is giving them full assistance, and has been successful in obtaining more cars than were in this service two or three weeks ago. Nevertheless, it just has been impossible to obtain enough cars to maintain adequate shipping schedules. The problem would be solved if the weather would permit northeastern traffic to return to normal, so it would not be necessary to prohibit shipment of all but military goods in a large section of the country.

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Most of the freight cars seem to be east of St. Louis, where they are caught in the second such embargo. Another factor is the difficulty railroads experience in getting two-way pay loads to most of the mud mills, the majority of which are in Missouri and Arkansas.

One mud mill is shutting down because it has nearly 4000 tons (80 carloads) of materials in storage. This mill was short 30 cars during one week in late January, but in more recent weeks has been short only 15 cars weekly. Several mills have been short from 10 to 20 cars per week. Each car hauls 800 to 1000 sacks of mud materials, or 80,000 to 100,00 pounds of mud.

In only one instance has the operation of a mud mill been retarded by anything but the lack of box cars. Here a lack of tires had reduced delivery of ore from the mine to the mill. PAW was instrumental in getting needed tires and the output of the mine has been almost doubled as a result.

Watch Closely the Manpower Situation

OPINIONS are divided as to what the manpower situation will be in the oilfields during this year.

Some oil company officials have reported that, possibly as a result of all the talk now going on in Washington and possibly because local boards are having trouble making their quotas, oilfield workers who have been deferred are already being reclassified, some of them into 1-A.

On the other hand, some think that federal legislation may make it more difficult for a man to jump from job to job. Oilfield workers now are classified as vital to the war effort, and tightening of manpower regulations would prevent some men from leaving a job on the slightest provocation.

As THE OIL WEEKLY sees it at this time, the manpower situation may be classified right along with materials shortages as an important factor working against the drilling of vital wells this year. We think that the materials situation probably will ease up before it has drastically affected present drilling plans, but we are not so sure about manpower. Many agree with us.

Certainly it is something which should be watched vigilantly.

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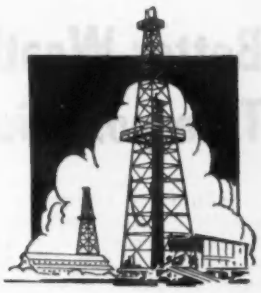
WASHINGTON ROUNDUP



By BERTRAM F. LINZ, Washington Correspondent

THE extremely tight fuel situation was the major subject of concern in Washington last week, but amelioration of temperatures toward the weekend served to abate fears that supplies of natural gas, oil and gasoline would fail in winter-bound eastern and midwestern areas.

Oil Situation Precarious—With the rising thermometer, the Office of Defense Transportation announced that a third weekend suspension of all freight movement except war goods would be necessary. But PAW officials warned that, at best, the oil situation was highly precarious and apparently destined to remain so for some time.

Plans to Meet Problem—The severe winter conditions which prevailed during the first five weeks of the year gave added point to repeated warnings by administration officials that great difficulty would be encountered in moving needed fuel and put in motion a series of acts by which it is planned to prevent a recurrence of that situation next year.

Panhandle Eastern Line—The first step in that direction was development by the War Production Board and Panhandle Eastern Pipe Line Company of a program for expanding the latter's facilities by next November, to safeguard the vital Ohio-Michigan war production area. (See page 56.) Other moves are expected to be taken to similarly protect oil, possibly involving the building of new tank cars and the assignment of tankers for coastwise movements.

Tubular Goods Outlook—Prospects for the supply of tubular goods for drilling operations during the second quarter were disclosed to have improved markedly within the past few weeks, with a possibility that the industry will receive from WPB as much as 95 percent of the amount estimated by PAW to be necessary for its 6900-well program. But supplies of steel and other items required by the industry remain very tight and expansions will continue to be restricted to those which must be made to carry out the war program.

Government Corporation Control—Following up last year's investigations which showed the most of the government-owned corporations are subject to no outside control over operations, expenditures or loans, legislation has been introduced in Congress to bring them under the scrutiny of the budget bureau and Congress itself and to limit their operations to those activities given specific congressional approval. Covered by the measure would be the several corporations with which the oil industry has had to deal—Petroleum Reserves Corporation, Defense Plant Corporation, Defense Supplies Corporation, etc.

Middle East Pipe Line—Reports from Cairo that oil companies were plotting out alternative routes for a Middle East pipe line, to be constructed privately but, if possible, with a government loan, brought from a PRC spokesman a denial that that agency was in any way involved in this latest development.

Anti-Trust Proviso and Pact—The Anglo-American petroleum agreement continued to hang fire while some way was sought to obtain unanimous approval of all interested agencies to the industry's demand for protection against anti-trust prosecutions for joint activities undertaken at the request of the government. A survey showed that considerable interest is being evinced in legislation in Congress, temporarily exempting from those laws the business of insurance, held some weeks ago by the Supreme Court to be within their scope, but it was not apparent whether the legislation was seen as indicative of Senate sentiment which would favor similar treatment for the oil industry or as evincing the possibility of obtaining definite legislation if the provision could not be incorporated in the agreement. The latter is considered doubtful, since such an act could readily be repealed by a subsequent Congress.

Second Quarter Steel Allocations Come Nearer Meeting Drilling Needs

The War Production Board this week is expected to set definitely the steel allocation for oil industry operations during the second quarter with indications that the allotment of tubular steel for drilling acivities will be within 15,000 tons of the 287,000 tons estimated to be needed under PAW's drilling program.

If PAW gets the 272,000 to 277,000 tons which now appears possible, it will mean inability to drill around 250 of the 6900 new wells scheduled for the quarter, but officials were hopeful that operators could find inventory or dig up tubular goods in some way to carry out the full program, which it was emphasized is of the utmost necessity.

Less than a month ago, figures on steel production and essential demands indicated that the industry might not get within 125,000 tons of the PAW estimate for tubular goods. The much better showing now indicated came as a result of collaboration by the WPB Army and Navy and other claimants in a re-examination of production possibilities and of anticipated actual needs.

The major competitor of oil for tubular goods was the military rocket, bomb and shell programs, which impose heavy demands on seamless and electric weld tubing. At the same time, the military recognized that munitions were of little value if equipment was immobilized, and calculated their needs very closely so as to leave as much material as possible available for drilling.

The outlook for the industry was further improved by determinations of new sources that could be tapped for small amounts of tubular goods.

At the same time, the situation is very uncertain, and the conferences between PAW and WPB officials this week will take a final look over all figures to see that unforeseen demands have not come into the picture to further complicate it.

Indications are that other steel needed by the industry will be allocated in sufficient quantity to cover estimated activities. The whole situation, however, has been clouded by the two railroad weekend "holidays" ordered by the government to enable the roads to dig themselves out from under snow and ice, and recent closing down of some mills temporarily because of the natural gas shortage. Whatever the amount of steel lost, it will hurt.

Better Weather Only Remedy for Bad Transportation Snarl in Northeast

Subnormal temperatures and unusually severe and numerous storms which interrupted rail and road traffic in the East and Middle West during the past few weeks have given point to repeated warnings by administration officials that despite ambitious programs undertaken since Pearl Harbor the margin between an adequate and an insufficient supply of all fuels is indeed slim.

A three-day ban on the non-essential use of natural gas in seven states and the District of Columbia, emergency adoption in at least one state of a five-day week for all except war and essential industries, and warnings by War Production Board officials that only the most prudent use of natural gas will save the Middle West from "disaster" before spring evidenced the drain upon reserves created by the enormous demands of war industries and the effect of cold weather.

Two week-end freight "holidays," during which the railroads moved only war shipments over the first three-day period and those shipments plus fuels in the second suspension of four days, accentuated an already evident shortage of oil and coal, bringing a ban in the East on the use of coal for heating theatres and other places of amusement and necessitating a loan by the Navy of a considerable amount of fuel oil to tide New York city over its emergency.

Tank Cars Stalled

With railroads tied up by new storms before they could be dug out from under the previous snow, thousands of tank cars were stalled in the Northeast, and failure of natural gas supplies in the Middle West made necessary the diversion to that area of hundreds of cars of oil originally destined for District 1. At one time, there were 6000 oil cars tied up in one area in Pennsylvania.

Waterway movement slowed down from Baltimore north and west to the Ohio River, and only the ability of the two big Texas-East Coast pipe lines saved the emergency from becoming a catastrophe.

With no coal moving in 17 states for three days, the interruption rippled back to the mines, which had to close down for varying periods, and householders in Eastern cities had to get police certification, after inspection of their bins, that they were out of coal before they could get new supplies.

With the dissipation of reserves built up by months of difficult effort, the difficulty of maintaining a steady flow of fuel to consumers has been accentuated, and officials admit that the East and Middle West could not withstand another prolonged spell of severe temperatures and storms without real hardship.

☆

DR. PHILLIP S. SMITH, chief Alaskan geologist of the United States Geological Survey, gave a paper, "Alaska's Potential Oil Resources," at the joint meeting, February 2, of the Oklahoma City and Shawnee Geological Societies at Oklahoma City University.

Civilian Gasoline and Oil In East Dangerously Low

PAW officials last week described the outlook for civilian gasoline and heating oil as one of "extreme gravity," with supply and demand in balance only on paper and so precariously that an upsurge in military requirements or deeper transportation trouble could quickly upset the whole picture.

Transportation, it was disclosed, is today the same factor of major importance that it was three years ago when PAW initiated its tremendous program of reorganizing and expanding overland movement.

There is gasoline in the Midwest that could be sent to the East, but there are no cars in which to haul it. The 114,267 tank cars carrying oil, it was declared, are working at seven times their peacetime rate.

"The bright spot in the picture is the continued smooth function of the Big Inch and Little Big Inch pipe lines," Deputy Administrator Davies said February 8. "They are consistently pumping more than 525,000 barrels of crude oil and refined products every day from the producing fields of Texas and from various refineries to the New York and Philadelphia area. It is not pleasant to think what the situation of the Eastern Seaboard's civilians and of our military supply to Europe would be if these great arteries had not been built."

While PAW is managing, despite adverse conditions, to build up national gasoline stocks against spring and summer demand, the home heating oil situation was described as "just touch and go," with present stocks in the East some 2,000,000 barrels less than a year ago.

Crude runs to stills this year will be higher than in 1944, but the output of home heating oil is not expected to be any greater.

"The reasons for this are purely military," Davies explained. "To be specific, the wider operations of our warships demand a greater volume of Navy special fuel, which is a combination of heavy industrial fuel oil and home-heating oil. A military grade of the latter is Diesel fuel and is required in increasing amounts to power our landing craft and submarines. An ever increasing volume of fuel oil that formerly was available for home heating now is being transformed by catalytic cracking into 100-octane aviation gasoline. Residual fuel oil is a product which also is tight at present in all parts of the country where transportation is congested. It is used for bunkering ships of our merchant marine, and also used extensively in heavy industry and for heating large hotels, apartments and office buildings.

"Even on the basis of present military estimates," he warned, "we may hope to continue present rationed civilian supply only by strenuous effort and with full public cooperation. There is not a barrel of gasoline in the country that can be truly defined as surplus."

The weekly PAW report on East Coast rail deliveries showed them to be at the lowest point in three years during the week ended February 3, with a daily average of only 439,722 barrels. During the previous week the average was 471,419 barrels daily.

Fred Jackson Named to PAW Foreign Division

Appointment of Fred G. Jackson of Houston as assistant director of the foreign supply and distribution division of PAW, was announced last week by Deputy Administrator Davies.

Jackson, who has been serving PAW since December 16, 1943, has acted as Canadian representative of PAW, and will continue in that capacity to work with the Canadian oil controller's office, in addition to which he will undertake the scheduling and planning of the distribution of foreign crude.

Prior to joining PAW, he was a private petroleum consultant in Texas for seven years. He entered the oil industry in 1918.

Summary Given of USGS Alaskan Exploratory Work

Petroleum investigations conducted in Alaska last year by the Geological Survey were summarized last week in a report by Director William E. Wrather to Secretary of the Interior Harold L. Ickes.

During the year, Wrather said, survey parties were sent to the Colville River in the far north and to the Katalla, Iniskin, Wide Bay and Yakataga areas on the Pacific Coast, which earlier investigations by the government, other organizations and individual prospectors have indicated are the most promising areas for oil.

The several parties undertook detailed and reconnaissance mapping over wide areas, made detailed studies of the rocks and brought back large fossil collections which now are being studied in the laboratory. In several areas the work revealed a number of geologic structures of the type in which oil commonly is found.

"Indications of oil in Alaska are widespread and have been known for many years, although investigations of potential oil areas by the Geological Survey have been deferred in recent years because of even more pressing duties," Wrather explained. "Only a small part of the rocks that may contain oil has been tested; the possibility of the presence of substantial reserves has not been adequately determined, although certain areas are worthy of further investigation.

"War demands have caused a heavy drain on petroleum supplies in the Pacific area, thus increasing the desirability of finding oil in Alaska. Large quantities of petroleum products must be shipped to Alaska, although the Canol project can supply part of Alaska's growing needs. Development of petroleum production in the Territory would free both imported petroleum products and shipping for use elsewhere."

Hawkins Trial Delayed

Judge Harris Gardner has postponed until February 13, trial of the suit brought by Humble Oil & Refining Company, involving the Texas Railroad Commission's proration order in the Hawkins field, Wood County. It will be tried before a jury.

Dangers of Dependence on Imports of Petroleum Are Cited by IPAA Head

Two outstanding problems certain to confront the oil industry after the war, if not before it ends, are the price of oil and imports. They go hand in hand, in the opinion of Ralph T. Zook, president of the Independent Petroleum Association of America. Speaking last week before the membership committee of the association in Los Angeles, Zook cited dangers that might arise from uncontrolled domestic production or from a flood of cheap foreign oil. Either factor can reduce our domestic oil industry to one of impotence, he believes.

On the question of imports, Zook points out two tendencies that threaten us: "There are some," he says, "who are ready to write off the United States as a strong producing nation and depend on the importation of foreign oil. Others are planning to use the greatest oil market of the world, the United States, to cure the ills of other countries at the expense of our country."

Typical of the latter group is the National Planning Association, Zook believes. "All plans for the importation of crude oil fade into insignificance," he emphasizes, "when compared with those of the National Planning Association which, in its booklet, 'America's New Opportunities in World Trade,' issued during November, 1944, recommended the importation of a billion barrels of oil annually by 1950. This is at a rate of 2,740,000 barrels daily. The estimated price is 75 cents per barrel."

Government Connection

Such a proposal would not be taken seriously, in Zook's opinion, were it to be made by a group of people not intimately connected with government. Among officers and trustees of the association however, are such men as William L. Batt, a vice chairman of the War Production Board; Charles E. Wilson, until recently executive vice president of WPB; Clinton S. Golden, vice president of the United Steelworkers of America; Beardsley Ruml, New York financier, and others.

"The recommendations of this board," Zook states, "are based on the conservation of our natural resources 'by importing a greater part of the nation's requirements for industrial raw materials.' Estimated demand for 1950 is in the neighborhood of the present production rate of about 5,000,000 barrels of petroleum and products daily. The proposed billion barrels yearly of imports would reduce domestic production by approximately 50 percent. On the basis of today's producing rate this would give Oklahoma an outlet for 175,000 barrels daily, Texas slightly over 1,000,000 barrels and California 450,000 barrels. Our total domestic production would be reduced to 2,250,000 barrels daily."

Such a policy would certainly lead to disaster in the oil producing states, Zook believes. "Picture Oklahoma, Texas, Louisiana, California, and other oil producing states with a dying oil industry. Employment, taxation, maintenance of schools and other public institutions in many cases depend almost entirely on oil production for their existence. The landowners would no longer receive the millions of dollars they are now paid for lease bonuses, rentals and royalties.

"If we were to buy all of our requirements from the cheapest source, there would be very little earning power remaining since most goods would come from abroad where wages are but a fraction of that paid in the United States. There is no more logic in saying that our oil should be produced in Venezuela than to say that our steel should be produced and furnished in Mexico, etc.

Price Competition

On the matter of price competition, Zook says that oil from the Persian Gulf can be delivered FOB New York via tanker (not through a Saudi Arabian pipe line) at an "out-of-pocket cost of $1.17½ per barrel. There is a difference in refinery realization of 20 cents per barrel in favor of East Texas oil which brings the competitive cost to $1.37½ per barrel. If and when the Saudi Arabian Pipe Line is built, this cost will be reduced 13 cents per barrel.

"The price of East Texas oil FOB New York harbor is $1.64 per barrel, which allows the Middle East producer a margin of 26½ cents per barrel if he sells at a price competitive with East Texas.

"A similar calculation shows that in the case of competition with Kettleman Hills' oil of 38-gravity, the Middle East producer has a margin of 25½ cents per barrel for profit on the investment in production and transportation, which for all practical purposes is the same as the Eastern Seaboard competitive situation.

"Let us remember that these figures are not based on a Saudi Arabian pipe line. This oil can be offered in large volumes at these costs almost as soon as tankers are freed from war use. It will require but little new drilling, which is planned to be completed during the current year. This foreign oil can be used to freeze domestic prices at their present level or lower if offered in volumes the market cannot absorb."

As far as the demand for crude in the United States is concerned, Zook says, "I am more concerned about the attitude of our government toward the importation of cheap foreign oil than I am about our inability to adjust promptly our internal production to market demand.

"The future of the domestic producer of oil, particularly the independents, depends a great deal on our government's attitude toward the importation of crude oil. The adoption of a policy of importation for a major source of supply would freeze domestic reserves at their present level or lower."

Zook cites recent statements from Robert E. Wilson, chairman of the board, Standard Oil Company (Indiana), and Standard Oil Company (New Jersey) in their book "Oil for the World," as outlining a policy on imports that is in accord with the traditional IPAA policy.

Both these statements of policy are constructive, Zook believes. "Similar statements by other holders of large foreign oil reserves and the Department of State could go far in assuring the domestic oil producer and the public that our nation will not be dependent on oil from foreign lands. With such encouragement the oil industry of the United States can have confidence in going ahead to increase the oil reserves and producing capacity of the nation to make us self-sufficient in both time of peace and time of war."

Wallace Pratt to Get Sidney Powers Award

The American Association of Petroleum Geologists announces that the first award of the Sidney Powers Memorial Award will be made to Wallace Everette Pratt, internationally known petroleum geologist and director of Standard Oil Company (New Jersey).

Wallace E. Pratt

This new award, established in 1943, is "in recognition of distinguished and outstanding contributions to and achievements in petroleum geology." The selection committee is headed by A. Rodger Denison, of Amerada Petroleum Corporation, Tulsa. The award is in memory of the late Sidney Powers, one of America's better known petroleum geologists.

The honor will be conferred upon Pratt during the annual business meeting of the association in Tulsa on March 27, and presentation will be made by Everett Lee DeGolyer, former president of the association. The award will be in two parts, the first being a gold medal containing a portrait of Powers, and the second an engrossed diploma with a citation as follows:

"For his early and continued contribution to the art of exploration for oil through application of the science of geology and for his advancement of the profession of petroleum geology through his able and friendly skill as an administrator and an executive."

Pratt, a native of Phillipsburg, Kansas, has been active in geology since 1908 when he served as an assistant on the Kansas Geological Survey. From 1909 to 1915, he was in the Philippines, first in the Bureau of Science and later as chief of the division of mines of the same bureau. In 1916 he joined The Texas Company in Houston as a geologist. In 1918 he became chief geologist of the Humble Oil & Refining Company, Houston. In 1923 he was elected to the Humble board of directors and in 1933 vice president. In 1937 he became a member of the executive committee of Standard Oil Company (New Jersey) and from 1942 until recently he was a vice president of the Jersey Company. He resigned from the vice-presidency lately, but retained his directorship and membership on the executive committee.

Pratt, one of the preeminent finders and producers of petroleum, is also an author and lecturer of note. His numerous articles on various phases of petroleum geology and his book "Oil in the Earth" are outstanding contributions. He headed the association as president a quarter of a century ago and is also a member of many learned societies and groups.

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JUDGE JAMES B. DIGGS, 82, counsel for Gulf Oil Corporation, died in Tulsa February 1. His death ended a career that started in Salem, Alabama, in the 1880's and included appearances as counsel for Gulf in the bitterly-contested Jackson Barnett oil lease case and a series of criminal prosecutions in United States courts.

Tells of China's 2000-Mile Pipe Line In Urging Extension of Lend-Lease

A 2000-mile pipe line is being built into the interior of China to move the oil products which will be necessary for the Allied Nations' all-out attack on Japan, it was disclosed February 7 by Foreign Economic Administrator Leo T. Crowley.

Appearing before the House military affairs committee to urge a one-year extension of the lend-lease act, which is due to expire June 30, Crowley cited the pipe line as one of a number of lend-lease projects to step up supplies for China and Allied military forces operating in the Far East.

The line is being built with the combined manpower and resources of the United States, England, China and India, he said, and "will increase many-fold the 15,000 tons per month that once moved over the old Burma road."

All of the lend-lease activities in China, Crowley testified, are aimed at preparing the combined forces of the United States to undertake new and greater offensives from that country.

A large part of the aviation gasoline for American planes operating in India and China came as reverse lend-lease from the British refinery at Abadan, he said, and it was indicated that much of the products for the China pipe line will come from the same source.

Petroleum products have constituted 5 percent of our total lend-lease transfers, and two thirds of the lend-lease petroleum shipments last year consisted of aviation and motor gasoline, Crowley said.

"Lend-lease petroleum products, sent mainly to Britain and Russia, have added immeasurably to the striking power of the Allied ground offensives and the air assault—from the West, East and South—on Nazi supply lines, transportation centers and war factories," he told the committee. "On the basis of the short-haul principle, we have received from British-controlled refineries under reverse lend-lease large quantities of aviation gasoline and other petroleum products for use by our armed forces in the campaign against Japan.

"Although lend-lease petroleum shipments for use by our Allies have been large, they have accounted for less than one tenth of United States production," he added.

Transportation Order for Northwest Revoked by PAW

A three-year old recommendation of the petroleum coordinator, never put to substantial use, was revoked by PAW last week when it wiped out recommendation 35, providing transportation cost equalization in the Pacific Northwest.

The recommendation was issued February 6, 1942, when it appeared probable that the Navy would take over all West Coast tankers and necessitate the use of railroad tank cars to move oil into the northwestern area, and authorized the District 5 district committee to gather statistics and develop methods for the equitable distribution of the excess transportation costs.

George Suman Heads API's Pacific Production Group

George O. Suman, superintendent of production and development for Tide Water Associated Oil Company, San Joaquin Valley District, Bakersfield, California, has been appointed national chairman of the Pacific Coast District, American Petroleum Institute's division of production. He succeeds the late W. L. Jarvis of The Texas Company. Suman has been associated with committee activities in the division of production for many years.

George Suman

A native of Indiana, Suman attended California Institute of Technology and Rice Institute, Houston, getting his B.S. degree from the former in 1920.

On June 20, 1920 he entered the employ of Tide Water as assistant resident geologist for the Kern River District, and the following year became resident geologist. During 1928 and 1929 he was district petroleum engineer for the East Side San Joaquin Valley and Kettleman-Coalinga areas, and in 1936 became superintendent of production and development for all fields in the San Joaquin Valley.

Not Played for Sucker in Middle East, Ickes Replies

Troubles of Solid Fuels Administrator Ickes with the coal miners stretched over into the realm of Petroleum Administrator Ickes last week with publication in the United Mine Workers' Journal of an editorial charging that "our British cousins" took the United States for a ride in the development of Middle East oil fields. Striking back at the union, Ickes declared the editorial "erroneous and uninformed."

"If the UMW Journal thinks our British cousins are 'playing us for suckers' by taking some of our steel to develop oil fields for the production of petroleum products that are essential to winning this war, then I plead guilty," he said.

The administrator said 15,000 tons of steel was furnished the British government a year ago under lend-lease, but asserted that action was well publicized.

Missouri Map

The Missouri Geological Survey and Water Resources, Rolla, Missouri, announces publication of a mineral resources map of Missouri. The map, in 5 colors, is on a scale of approximately 10 miles to the inch and shows general distribution of 21 mineral resources. All principal processing plants and many mines, quarries, pits, oil and gas fields, oil and gas lines and railroads are shown.

Seek Close Control Over Government Corporations

Legislation stiffening the controls over government-owned corporations has been introduced in the Senate by Byrd of Virginia and Butler of Nebraska and will be sponsored in the House by Case of South Dakota.

Specifically named among the organizations to which the measure is intended to apply are Petroleum Reserves Corporation, Defense Plant Corporation, Defense Supplies Corporation, Rubber Reserve Company, Inland Waterways Corporation, United States Commercial Company, Reconstruction Finance Corporation and Rubber Development Corporation.

All of the corporations would be required to prepare annual budget programs, as do other agencies, and obtain approval from the bureau of the budget before their submission to Congress. Such estimates are to cover, among other things, the necessary borrowing by the corporation, and the amount of government capital funds which are to be returned to the treasury during the fiscal year.

No wholly-owned government corporation could transact any business except that authorized by Congress, nor expend any funds except in the amounts authorized and made available by Congress. No additional government capital or paid-in surplus could be provided except by specific authorization and appropriation by Congress.

It is also provided that no further corporations shall be created except by direct congressional action or pursuant to an act of Congress specifically authorized them.

Synthetic Liquid Fuels Bibliography Available

The United States Bureau of Mines, Washington, D. C., announces a bibliography of its publications on the subject of synthetic liquid fuels. The bibliography also includes references to articles by the bureau staff in technical journals and to cooperative reports on investigations conducted jointly with states, colleges, and industries.

The bibliography may be obtained from the bureau by asking for Information Circular 7304.

68 Producers Sold

The Co-Operative Refinery Association, a subsidiary of Consumers Co-Operative Association, has acquired from Adair & Morton of Wichita, Kansas, 24 leases with 68 producers as well as 4375 acres of undeveloped leases in Kansas for a consideration said to be $700,000. The wells produce approximately 1000 barrels a day which will be run to the Co-Op refinery at Coffeyville, Kansas. Producing properties are in McPherson, Cowley, Butler, Barton and Marion counties.

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LIEUTENANT COLONEL WILLIAM B. PLUMMER of Standard Oil Company (Indiana), Chicago, has returned after active duty with the Army Air Forces. He was first assigned to special work on aviation gasoline in the office of the Under Secretary of War, in Washington and later joined the armed forces. During most of 1944 he was with the AAF eastern procurement district as chief of the contract termination section, New York.

Fear of Cartelization Holding Up Cabinet Group Approval of Oil Pact

Fears that inclusion of a safeguard in the industry against prosecution for joint activities undertaken at the request of the government might lead to "cartelization" were seen as the underlying cause of delay in perfection of the revised Anglo-American petroleum agreement and renewal of negotiations with the British government.

Demanded by the industry as the price for its cooperation in making the agreement effective, the provision is understood to have been given the support of all but one or two of the men who must pass on it as members of the Cabinet committee. So far as could be learned, the only objections lodged against the provision were based on the idea that, freed of the restrictions of the anti-trust laws, the industry might engage in the formation of cartels, but supporters of the "umbrella" expressed the view that this could not occur if the State Department maintained the control of activities under the agreement which is expected of it.

So far as could be ascertained, the Department of Justice has not yet made it clear whether it would accept the safeguard, but it is believed in informed circles that if Attorney General Francis Biddle becomes reluctant, the matter will go to the White House, probably resulting in President Roosevelt approving the provision. It is not believed that the treaty could get Senate ratification without such a provision, much less the support of the industry, and the President must have the oil agreement if similar understandings with respect to rubber and other important international commodities are to be negotiated.

Meanwhile, considerable attention is being paid to legislation already passed by the Senate and now pending in the House, expressing the intent of Congress with reference to the regulation of the business of insurance, which is seen as a possible clue to the attitude of Congress with respect to the limited anti-trust immunity for the oil industry which is sought in the agreement.

That legislation specifically exempts the insurance business from the operation of the anti-trust laws except as to any agreement or act involving boycott, coercion or intimidation. The measure, further, definitely raises an umbrella over the business with a stipulation that "the provisions of said Sherman act shall not apply to any agreement or concerted or cooperative action between two or more companies in specified fields, if the results of their concerted efforts "have been filed with and, prior to their application or use, expressly approved by the state official or agency having authority."

Gas Office Opened

Washington offices of the Independent Natural Gas Association of America were opened last week, E. Buddrus, president, announced. The new offices, located in Suite 305 at 1700 I Street N. W., will operate under the direction of John A. Ferguson, executive director, recently appointed.

Crude Oil Production in the United States

(Estimates compiled by The OIL WEEKLY. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED February 10	February 3
Alabama	300	300
Arkansas	81,550	81,300
California	893,700	893,500
Colorado	9,350	10,050
Florida	50	50
Illinois	205,100	197,200
Indiana	13,200	12,600
Kansas	252,800	257,400
Kentucky	30,200	29,450
Louisiana	357,500	357,250
North Louisiana	68,300	68,000
South Louisiana	289,200	289,250
Michigan	46,800	46,700
Mississippi	46,800	48,150
Missouri	100	100
Montana	23,230	23,640
Nebraska	950	950
New Mexico	104,100	104,050
New York	13,100	12,950
Ohio	6,550	8,750
Oklahoma	363,550	363,800
Pennsylvania	31,750	33,100
Tennessee	35	35
Texas	2,141,350	2,149,950
Upper Gulf Coast	552,650	552,650
East Texas Field	391,950	400,550
Rest of Eastern Texas	144,100	144,100
Lower Gulf Coast	243,900	243,900
Southwest Texas	78,400	78,400
South Central Texas	20,050	20,050
West Texas	478,550	478,550
North Texas	143,050	143,050
Panhandle	88,700	88,700
West Virginia	6,750	9,000
Wyoming	94,850	98,000
Total United States	4,723,665	4,738,275

Bureau of Mines Reports

Total stocks, foreign and domestic, February 3, as reported by the Bureau of Mines were 221,674,000 barrels daily average, output 4,723,000 barrels and runs to stills 4,662,000 barrels.

Continental Makes Offer For Navarro Company Stock

Continental Oil Company is making an offer to the stockholders of Navarro Oil Company of Houston to purchase the stock held by them at $46.50 per share. The offer is conditioned on stockholders of Navarro selling, in the aggregate, not less than 80 percent of the outstanding stock consisting of 348,919 shares without par value. Navarro stockholders would have until March 1, 1945, to assign and deliver their shares.

Navarro Oil Company was organized in 1922 as Farish-Watts-Collins Company, and its name was changed to the present title in 1925. S. P. Farish is president of the company. Its producing properties are located principally in the Gulf Coast area and in East Texas, and comprise 65 leases on which 207 producing wells are located. The company also holds royalty interests on 22,336 acres and has a total of 55,725 acres of undeveloped leases in Texas, Louisiana, Illinois, Kansas, Arkansas, Mississippi, and Oklahoma. The current daily net production is approximately 6000 barrels, of which approximately 1160 barrels is represented by royalty interest oil.

Bills Seek to Prevent Cessation of Subsidies

In an effort to head off a threatened breakdown in the subsidy system which would have cut off transportation, stripper-well and high-cost payments June 30, members of the banking committees of House and Senate joined last week to push remedial legislation.

Bills carrying the names of leading members of those committees were introduced in both houses February 8, providing for nullification of the Taft amendment to the stabilization act which would prevent the payment of all subsidies after June 30 unless the paying agencies obtained a specific appropriation from Congress.

That amendment was first pressed by the Ohio senator in 1943, and was defeated but was slipped into the act last year.

Reports to Washington recently disclosed that the mineral industry, operating broadly under a subsidy system, and apparently elements in the oil industry as well, were becoming restive because of uncertainty as to where their operations would stand on July 1.

Inquiry by members of Congress developed that the OPA will not be prepared to submit a new stabilization bill for at least a month's time, then time would be required for its consideration and passage, and it will have to be followed by appropriation bill, requiring more time, so that it may be late in May or sometime in June before the program it "set." Under the Taft amendment, it would not be possible for the Reconstruction Finance Corporation to announce whether subsidy payments would be continued after June 30 until Congress had dealt with the whole program. To eliminate the uncertainty which otherwise will prevail, the legislation will provide that subsidy payments may be continued for another year, until June 30, 1946, and permit the subsidy-paying organization to incur subsidy expenses not in excess of $450,000,000.

Senator Taft, who was represented not to be opposed to such subsidies in sponsoring his original amendment but interested in economy, has indicated that he would not oppose legislation.

Three Oil Bills Offered By Texas Representatives

Three bills affecting the oil industry were introduced into the Texas Legislature last week. House Bills 245 and 250, companion measures, by Marvin Simpson of Fort Worth, have been set for committee hearings February 27.

The first provides that a majority of the directors of all gas and electric utility corporations operating in Texas must be bona fide resident citizens of the state. Such a law applies now to banks and railroads.

The second Simpson bill forbids any domestic or foreign corporation voting the stock of another corporation. This would affect corporations now domiciled in Texas, a majority of whose stock, is owned by another corporation.

H. B. 242, the third measure, provides for an increase in the tax on carbon black to 1/6 of one cent per pound on all black produced, the market value of which is 4 cents per pound or less. If the market value is higher, then the tax provided is 6 percent of the value.

Problems in

Measurement of Wet Gas

Mastery of the subject is hard because of variables which influence accuracy

By T. C. SHAW
Anchor Petroleum Company

DETERMINING the flow of fluids is one of the three most important measurements required by industrial instruments, the other two being temperature measurement and pressure measurement.

There are two primary reasons for the measurement of the flow of gas: First, to establish the ratio or volume needed into a continuous process or to an established market, such as the amount of wet gas into a plant or to a pipe line so the plant or pipe line can be technically operated, based on these volumes. Second, to determine the disposition of the material relative to the cost settlement or payments.

The use of gas as a fuel and as a processed material has created an important application for flow meters, and in this service it naturally requires extremely high operating efficiencies. Since the products measured are usually sold on the basis of meter readings, it becomes essential for gas engineers to have a sound knowledge of the fundamentals of flow meter mechanisms and to be able to compute the flow of fluids through differential type flow meters without errors. The number of variables that can influence the accuracy of flow meters are numerous, and therefore the mastery of this subject is not easily accomplished.

Measurement Factors

There are a number of factors that have a pronounced effect on the problem of wet gas measurement, principally in determining the coefficient to be used. Factors considered most important are:

1. Density of the fluid passing through the orifice.
2. Pulsating flow.
3. Deviation from the true gas law.
4. Correct reading of the charts upon which the pressure and the differential are recorded.

The first three of these factors are of extreme importance in determining the proper coefficients to be used in wet gas measurement, while the fourth is a mechanical problem that naturally has no bearing upon the flow of the fluids, but entirely upon the computation of the results recorded by the meter.

Probably one of the greatest errors in measurement of high pressure wet gas is the density or gravity factor of the gas to be measured. The only way the industry has had in the past to determine the specific gravity in the orifice coefficient for high presure distillate-bearing gas or rich gas has been to analyze a sample and have the testing laboratory submit a theoretical specific gravity based on the percent of different hydrocarbons in the gas so analyzed. This method is necessary because condensate would precipitate out and the specific gravity would not be accurate if measured in the conventional way by a gravity balance.

Density of Fluid

It has been the experience of testing laboratories that, after running a sample of wet gas bearing distillate, they have found considerable quantities of water in the sample containers after completing the analysis of the gas. The quantity of water found there naturally would bear some relationship on the coefficient for specific gravity and it would be proportional to the amount of water in the container. In many other instances, though the gas containers had been heated, some distillate remained in the containers. This, also, would bear a small relationship on the coefficient which should have been used for the specific gravity of that cubic foot of gas. In other words, the specific gravity of gas as weighed could easily be much heavier than the actual theoretical specific gravity of the gas analyzed due to water and to heavy hydrocarbons that have precipitated from the gas.

The same trouble was experienced in the Gulf Coast in a cycling plant where the error of measurement was relatively high. After testing the wells for determining the gasoline content, it was noted the wells were making a quantity of water, which the separator was catching. This separator was operating at approximately 1200 pounds gauge and only a few degrees above the hydrate forming point in order to obtain an efficient separation. It was decided, after numerous tests throughout the field, that evidently water vapors were materially affecting the measurement, and for accurate measurement it would be necessary to determine the exact quantity of water in a vapor phase and entrained with the gas being emitted from each well each hour. A test separator was devised so that it could be run with a very low pressure and comparatively low temperature in order that all of the water vapors contained in the gas might be trapped. Next step was to take a core sample of this gas, matching, of course, the velocity of the gas through the test separator with the velocity of the gas flowing through the field line to the plant, and continuous samples were run until the exact amount of water that was contained in each cubic foot of gas was determined.

Accuracy Gained

Simultaneously, the tail gas from the separator was actually weighed by a balance intermittently during this test. The result of the gas weighed by the balance and the specific gravity of the distillate trapped in the separator and the specific gravity of the water which was also accumulated in the lower section of the separator, were utilized to actually determine the true specific gravity of one cubic foot of gas going through the orifice meter. This error, in one instance, ran as high as 15 percent on one well, but of the five wells tested, it was necessary to correct the specific gravity factor on all the meters. After the survey was completed and a new specific gravity was applied into the coefficient, this plant then balanced within one percent based on the incoming gas to the repressured gas going back into the sand.

D. A. Sillers of Lone Star Gas Company made reference to these findings before the Natural Gasoline Association of America at Dallas in April, 1943. It was found that the specific gravity as determined by tests, was not as sensitive as the distillate content test. Where the specific gravity of the residue gas as processed was found to be .642, the specific gravity of the two-phase gas was .680. It will be noted, however, that the accumulated liquid accounted for .038 in the total results, so that a small error made in conducting the test would be reduced to about 5½ percent of that error in the final results.

The problem of specific gravity probably is more severe in some fields than in others. In wells making little water, the error would naturally be much less than in wells showing considerable quantities of water vapor; therefore, to the gas engineer falls the responsibility of determining whether the gas to be measured is high in water vapors or low in water vapors.

Another way to make an actual and true gravity on high pressure wet gas would be to devise a cylinder in connection with the flow line with a sampling connection inserted in the flow line, and actually catch and weigh with accurate scales the gas contained in the cylinder. This, possibly, has never been tried, but it would seem to be feasible and possible as scales accurate enough to weigh gas are available in numerous plant laboratories and also in most first-class testing laboratories.

Pulsating Flows

It is often found in practice that the flow of gas to be measured is not steady but is pulsating in character because of the action of reciprocating compressors delivering the gas in an irregular discharge through the meter, or some other causes inherent in the process. A condition of this kind inevitably will produce a large error in the measurement of the flow of gas in a differential pressure meter and this should be avoided if it is at all possible.

There is little experimental data available for correcting the flow coefficient for pulsation and, therefore, any correction for this condition will have to be based on theory and may or may not give an accurate correction for the flow. Naturally, the best way to reduce the error of pulsation is to eliminate the cause or the pulsation to a negligible factor by the use of chambers of sufficient size to stabilize the pressure and reduce the severity of the pulsations per minute to a point where they will not reflect on the differential pen in the meter.

Dampening devices or standard equipment are on all differential type meters, but in addition to these dampening devices it has been found that the installation of pulsation pots on the up-stream and down-stream lines help materially in reducing the pulsation factor. This pulsation device comes off the orifice flanges into this pulsation chamber and into a slotted line running parallel with the pulsation chamber and is slotted

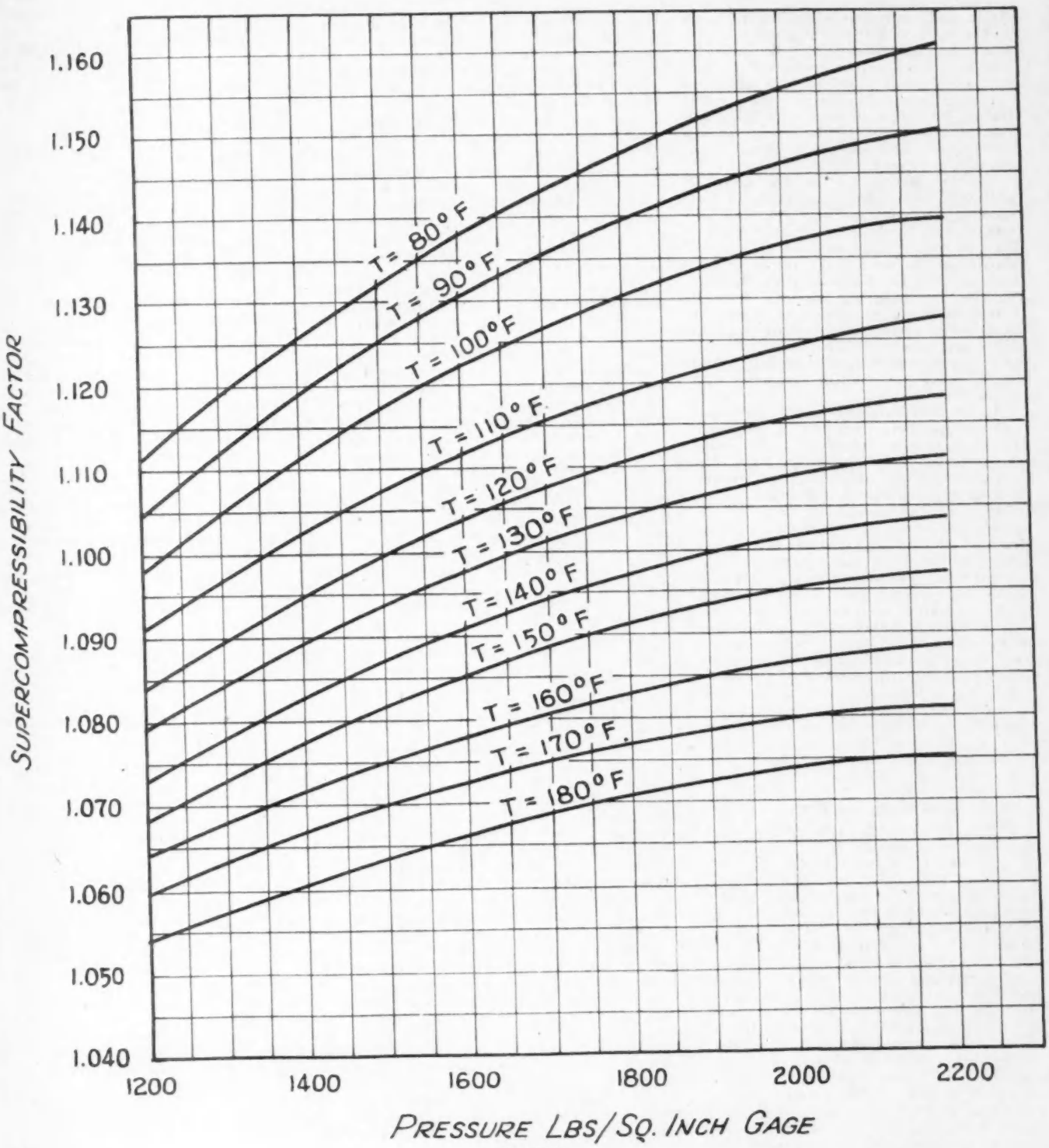

FIGURE 1

Supercompressibility curves for Michna 7 well stream flow, 5800-foot sand.

$$F_{pv} = \sqrt{\frac{1}{z}}$$

Volume percentage: Methane 90.935, Ethane 3.867, Propane 1.702, I-butane 0.684, N-butane 0.482, Pentane and heavier 2.330, Total 100 percent.

downward at about 45-degree angles. The dampened gas comes off the top of this chamber to the orifice meter. A drain is provided in the bottom section of this chamber so water or distillate can occasionally be drained, which, to a certain extent would be detrimental to the effects of this chamber. This type of chamber was first used by the Henderson Company at its Agua Dulce plant near Banquette, Texas. Before the installation of these chambers, the plant balance showed they were injecting into the ground sometimes as much as 20 percent more gas than they were processing in the plant. Careful consideration had been given the measurement of the incoming gas, and it was assumed that this measurement was fairly correct. After the installation of these chambers, which were on the discharge headers of the compressor going to the injection well, the error was substantially reduced, and most of the time a complete balance of incoming to outgoing gas could be obtained at this plant.

Another thought to minimize the effects of pulsation, would be the installation of a secondary orifice, 50 to 75 pipe diameters ahead of the orifice used for measuring the gas flow. The use of a secondary orifice will naturally cause a small pressure drop in the line and, to be effective, it should be designed to produce at least a three to four pound pressure drop. Professor Bitler of Ohio

State University ran experimental tests in conjunction with the Natural Gas Association, and found that by using a smaller orifice with a wider differential, say as high as 0-300, but in all cases carrying the differential above 100 inches, he was able to greatly minimize the pulsation caused by reciprocating compressor and pulsation flows were greatly improved.

Another method for the elimination of pulsation is by the installation of two meters, one on the flow line and the second on a Y, dead-ended. Both meters are put into service and the differential shown on the dead-ended meter is subtracted from the differential on the meter that is measuring the total flow. It being assumed, in this case, that the dead-ended meter would show a slight differential due to pulsation, and the differential shown due to pulsation would be the same pulsation in the meter that is on the line.

All of these methods are effective and will assure beter reading if properly installed. If it is impossible to eliminate the pulsation from the meter by methods outlined, the only other alternative is to study the matter and make a correction for this condition.

In most cases of pulsating flow, the reading on the flow meter will be in error on the high side except in case of extremely slow pulsation, which is never encountered on gas compressors, as the pulsation there is too rapid to be followed by an orifice meter mechanism. It has been found that if the cycle occurs as rapidly as 50 pulsations per minute or above, the ordinary mercury-filled orifice flow meter will not respond to each pulsation. This is due to the inertia of the mercury in the meter. This condition will increase in severity as the pulsation factor increases in pulsation rates per minute.

Evaluating the Error

The theoretical evaluation of the error resulting from pulsation may be made as follows: If it is assumed that the pulsations are of a nature that permits the maximum flow for one-half of the time and no flow for one-half of the time, this cycle can be represented as 50 percent or one-half. It is also known that the relation between flow and pressure differential for all pressure differential type meters is parabolic. The curve of flow from zero to 100 percent is plotted against the pressure differential from zero to 100 percent. Under the condition of the flow outlined above, the meter will record an average pressure differential of 50 percent of the total head. However, owing to the parabolic characteristics of the flow, this average pressure will not represent 50 percent of the flow but will represent 70.7 percent of the total flow which is found by extending the ordinate to the flow curve at the point of 50 percent of maximum differential. The reading under this condition of flow is, therefore, 41.4 percent higher than would be the case if the instrument were sufficiently sensitive to record the true differential, or if the same flow were being delivered at a steady rate.

This simple illustration also can be applied to pulsation due to the action of a reciprocating pump. The cycles may be calculated on the data available on its speed and valve action. However, it is much better actually to calibrate a flow meter measuring the pulsating flow since the inertia of the fluid or gas and the capacity of the system may induce pressure waves that will create an entirely different cycle of flow from that deduced from consideration of the source of pulsation only. Only after careful calibration of the flow meter in service can measurement of pulsating flow be obtained that will approach the accuracy of the measurement that can be obtained under conditions of steady flow. This naturally reverts back to a statement previously made, that pulsation decreases with the increase in the orifice to pipe ratio, and the error also seems to decrease with an increase in pressure differential.

The value of the pressure of the flowing fluid plays a further role in determining the volume of gas flowing through an orifice meter. Since gas, the fluid with which we are concerned, is a compressible fluid, it is useless to measure gas in terms of volume unless the pressure is specified, because a given volume may contain various amounts of gas, depending on the pressure exerted and the amount that is compressed in the volume. In dealing with gas at low pressures, this has been a very insignificant factor, but when an attempt is made to measure gas under high pressure, the use of the ideal gas relationship as pertaining to low pressure gas leads to high errors. Many different equations have been proposed and used in the past which are supposed to give representative relationship between pressure volume and temperature. They have, in many cases, been very complicated and somewhat inconvenient for practical use.

Dr. George Granger Brown of the University of Michigan has presented for the industry formulae and methods for determining the super-compressibility factors and they have been universally accepted. His curves and graphs are available for the calculation of the compressibility factor to be applied to orifice coefficient for measuring gas to any pressure desired, and are entirely satisfactory for all engineering computations involving natural gas. In arriving at the compressibility factor of natural gas, it must not be forgotten that the relationship of pressure volume and temperature has a tendency to minimize the severity of the error that may be assumed to be evident. When pressure is applied to a cubic foot of gas, it diverts from the true gas law and is compressed. Usually at the same time that the gas is compressing, the temperature is increased, which compensates to a large extent for the amount of compressibility that the gas has due to the expansion caused by its temperature increase, and only in unusual circumstances where gas is being measured at extremely high pressure and low temperatures is the error caused by the compressibility of gas severe; therefore, the problem of the compressibility factor of the gas does not offer any unsurmountable problems to the engineer in measuring wet gas.

Figure 1 represents a sample of wet gas of a fairly rich gallons per minute and for simplicity of operation, a graph has been applied to this gas and all of the compressibility equations have been calculated and graphs run at various temperatures and pressures. At 80 degrees temperature and 2000 pounds pressure, the super-compressibility factor is 1.155, while at 180 degrees temperature and 2000 pounds, the factor is 1.074, which is substantially less. In Figure 2 a gas that is relatively dry is taken into consideration. At 2000 pounds the super-compressibility factor of the same gas, after the extraction of the gasoline and light hydrocarbons, has been reduced from 1.155 to 1.125 at 80 degrees temperature, and at 180 degrees, the compressibility factor has been reduced from 1.074 to 1.058. From these two graphs it is easily seen that considerable error can be encountered in the compressibility of gas if the temperature is low and the pressure is high, but if the temperature increases and the pressure remains constant, the error is substantially lower.

Correct Reading of Charts

Chart accuracies are an important factor in accurate flow measurements regardless of operating pressures. Charts for any make of meter should be held to very close tolerances. This would be equivalent to having all charts printed from one master plate.

In the calibration of flow recording instruments, identical travel for the various pressure and differential ranges is imperative. Charts should be concentric in both the printing and punching so that proper zeroing and testing of instruments can be accomplished without taking into account the average conditions in the field. Apparently, the seven-point chart, which is made of heavier paper, is more suitable for all operating conditions than charts made of lighter paper.

Chart reading also has a definite bearing on flow measurement accuracy. After the charts are once recorded, the reading is sometimes referred to as an accounting procedure. The three methods most commonly used for reading charts are the following: Observation, planimeter and integrator. The first two methods are satisfactory for rough operating purposes, but are fundamentally incorrect if the pressure and differential of the flow recorded show an appreciable amount of fluctuation. The integrator is conceded to be the most accurate method of reading charts, as apparently all of the human elements in approximately the recorded lines is eliminated. It is also much faster and eliminates possible disputes in chart calculations which so frequently arise from charts read by other methods.

Flow meter measurement is a problem in which a number of errors can occur; therefore, each step which will eliminate these possibilities is a definite improvementment toward accomplishing measurement perfection.

The four above mentioned factors (density of the gas, pulsations in the lines, deviation from the true gas law, and correct reading of the charts) probably contribute more to the various problems and errors encountered in wet gas measurement than any other thing.

In measuring wet gas at high pressures, principally gas that is distillate-bearing, a retrograde phenomenon is encountered that has caused considerable trouble in measuring gas under high pressures. Briefly, when this form of measurement was entered into, difficulties were encountered caused by hydrocarbons going out of the solution and liquid accumulating behind the orifice plate. Several methods were introduced at that time, one being that horizontal meter runs were quite satisfactory provided weep holes were bored in the bottom part of the orifice plate to allow the condensate to emit through the ori-

Comparison of the smallest and largest National Unit Pumpers. Note comparative heights of men in each illustration

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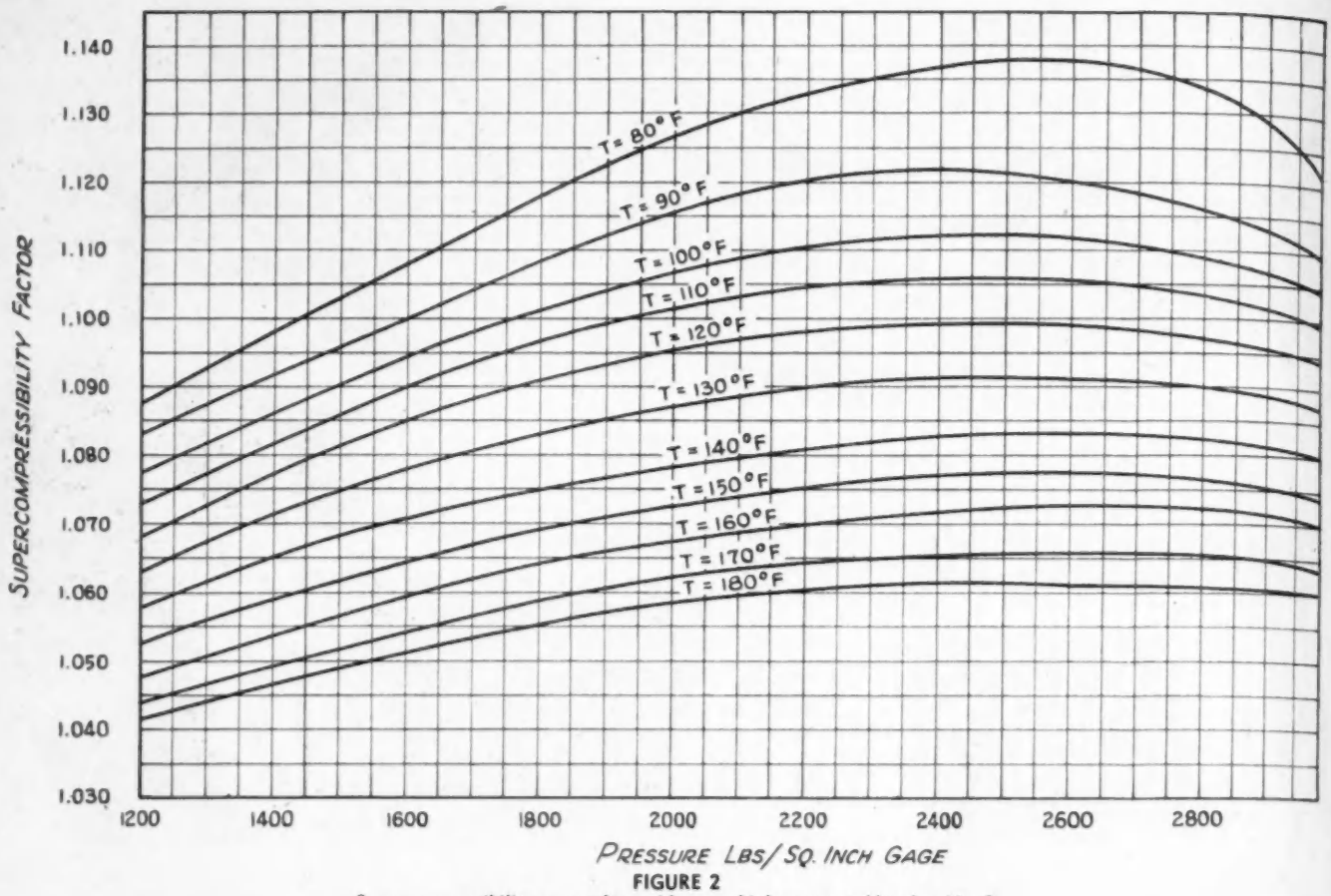


FIGURE 2

Supercompressibility curves for residue gas high pressure Absorber No. 2,

$$F_{pv} = \sqrt{\frac{1}{z}}$$

Volume percentage: Methane 95.74, Ethane 2.67, Propane 1.06, Iso-butane 0.21, Iso-pentane 0.05. Total 100 percent.

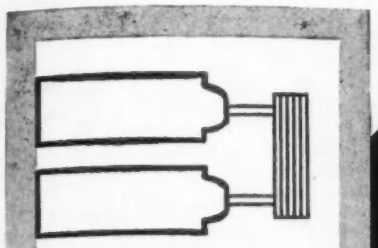
fice plate, which would eliminate to a great extent the restricted area on the up-stream side of the orifice plate. This condition has happened in many cases and has affected the measurement materially.

Another method to correct the effect of condensate on the up-stream side of horizontal meter runs was to use vertical type meter runs. This method has been pretty well accepted as standard where wet gas at high pressures is being metered. In horizontal meter runs, however, it has been found that in most all cases where condensate is built up behind the orifice plate, there has usually been a marked decrease in pressure from the well head to the orifice connection, and naturally, when the pressure is reduced on this type of gas, condensate will form. If the pressure is maintained at well head pressure as far as the down side of the meter run, it is reasonable to assume that very little condensate will accumulate in the meter run, and accurate measurement can be obtained by the use of horizontal meter runs and they are, under this type of operation, just as satisfactory as vertical meter runs.

Another problem that has been encountered in high pressure gas measurement, and is usually multiplied to a great extent if the orifice plate and meters are close to the well, is the cutting action of sand usually emitted from a high pressure condensate well when the rate of flow is materially stepped up as it is in some cases. This cutting action naturally takes place to a certain extent constantly on the orifice plate in the line from a high pressure gas well, and of course, the closer this plate is to the well, the greater the cutting action. A number of errors in measurement have been traced directly to the fact that the orifices, as sized in the various meter runs, have ben enlarged due to this cutting action. When they were removed and new plates installed, the plant balance came back to a balance where very little error was encountered.

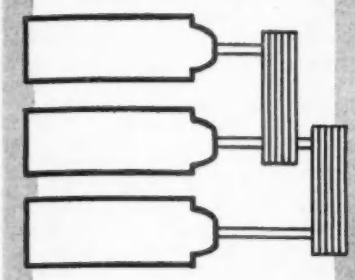
There is no predetermined time when orifice plates should be measured and checked. The operator of the field has a better knowledge of this condition than anyone, as he knows the rate of flow, the irregularities in measurement and peculiarities in wells and sands from which they are producing, but it might be well to bring out that this one small thing has in many instances caused errors in gas measurement in Gulf Coast cycling plants.

When measuring wet gas at high pressures, due to the hydrate point of the various hydrocarbons at elevated pressures, considerable trouble has been experienced even in the South Gulf Coast, due to the freezing of meters. Numerous corrective measures have been taken to eliminate this trouble. Seal pots where glycerine or other non-freezing solutions have ben used in order to eliminate the hydrates forming in the meters and cutting off the differential across the meter. Some of these methods, of course, have merit, but it is rather difficult to use any non-freezing seal pot liquid without the same finally being contaminated and displaced with gasoline or connate water, and when this material finally becomes contaminated to a large extent, it has no further use as a seal pot material. It has been found that the best solution for eliminating the hydrate freezing trouble on high pressure gas meters, principally in recycling plants where the meters are close to the wells and the wells are flowing from a rather deep horizon which is relatively hot when the gas comes to the surface, is to install a house directly over the meter run, completely insulated, and if necessary, install fins to radiate the heat. These should be tacked to the outside surface of the meter run inside the meter house. It has been found that, where 135-degree gas is coming from the ground with a well-insulated and well-radiated meter house, the temperature inside can be maintained as high as 125 degrees, at which temperature very little hydrate trouble can be expected. These meter houses are relatively inexpensive, as they can be made from wood and lined with Celotex or cork board or vermiculite insulation, painted and protected on the outside so that they are weather proof, with a door installed for changing charts and with the upper half of the house hinged so that it may be unbolted and pulled away from the meter so that it may be serviced. The bottom section of the house should be permanently attached to the meter run as it would only be necessary to remove this in the event plate changes were necessary. Then, in addition to the insulated house, the accepted practice now is to use in the seal pots of the meter condensate that is the same as in the gas.



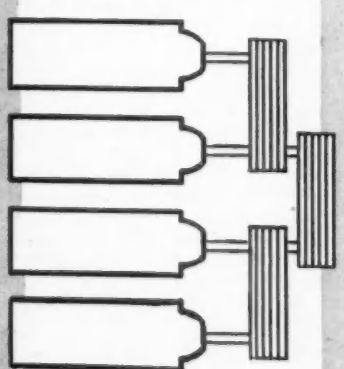
450 hp

450 HP. The first rigs powered with compounded Cummins Diesels used *two* Model LP-600's, each rated at 225 hp. at 800 rpm., to provide 450 hp.



675 hp

675 HP. Prompted by the success of the two-engine hook-up and also by the trend toward deeper drilling, leading rig builders fashioned their designs around *three* compounded Model L's which provide a total horsepower output of 675 hp.



900 hp

900 HP. Visualizing "deep hole" drilling on an increased scale, manufacturers now have "on the boards" rigs calling for *four* compounded L's on the drawworks and two L's compounded on the mud pump.

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Oil Deterioration

A Discussion of Causes, Effects and Remedies of Lubricating Losses

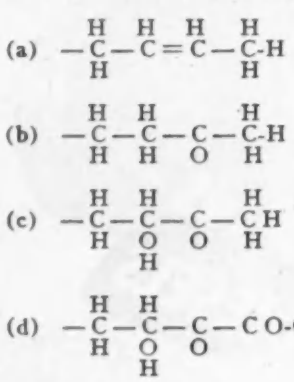
By THELL C. WOODS, Research Chemist
Deep Rock Oil Corporation

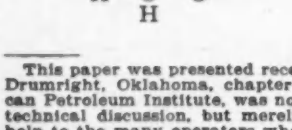
NO SUBJECT, with the possible exception of taxes and the weather, has more universal concern than the break down of lubricating oil. Not only is oil deterioration of special interest to the maintenance superintendent of a fleet of trucks or busses, but the engineers who look after the many stationary engines in our pump stations and numerous power plants are constantly confronted with the "why's and when's" of oil break down. Also every one who has ever driven his personal car into a service station and said "change the oil," has some interest in this subject. It is not the purpose of this paper to summarize all the voluminous reports relating to the subject, but to present some of the more important recent conceptions in regard to the causes, effects and remedies of oil deterioration and recall some of the older and quite obvious lines of reasoning.

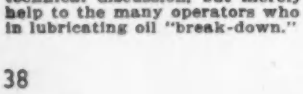
It is hoped that some of the ideas presented here will bring about a clearer realization that quantity and appearance of a used oil is by no means the proper criterion to judge the degree of deterioration of an oil in use.

Causes

A. *Oxidation.* This is perhaps the most important cause and in spite of the fact that a majority of the research work and reports mentioned above dealt primarily with this phase of oil deterioration, comparatively little is known of the actual chemistry of lubricating oil oxidation. The most common oxidation products of an olefin such as represented by (a) is shown in (b), (c), (d) and (e).







This paper was presented recently before the Drumright, Oklahoma, chapter of the American Petroleum Institute, was not intended as a technical discussion, but merely as a possible help to the many operators who are interested in lubricating oil "break-down."

While the reactions shown here are taking place, other side chains within the same molecule are being oxidized which adds to the complexity and difficulty of an accurate investigation of just what happens. However, from a practical standpoint the factors which affect oil oxidation are more important. Some of these factors are:

Factors Affecting Oxidation

1) Chemical composition of hydrocarbons found in the lubricating oil. In general, the paraffin and cyclo paraffin or naphthenes are more stable than the olefins and aromatics.

2) Concentration of oxygen. Of course the more an oil is in contact with air, the more opportunity those constitutents of the oil which have an affinity for oxygen will have to come in contact with oxygen and thus speed up oxidation.

3) Heat, another factor which is common knowledge. Increase in heat increasing oxidation.

4) Pressure. This factor is more often overlooked or forgotten. The high compression ratios which are common to the present day car, speed up the oxidation of the thin film of oil in the pressure region because of this high pressure along, to a certain extent.

5) Catalyst. Every day we are beginning to realize more and more the importance of catalyst in lubricating oil deterioration. Impurities entering the oil system through both the combustion cylinder and the breather cap often accelerate oxidation. Most of the metal salts, which are the result of the action of organic acids on the numerous kinds of metals used in bearings, lines, case, etc., are oxidation accelerators. While the peroxide represented by formula (e), may not be a true catalyst, it has more recently been shown that many of these peroxides have a great deal to do with the auto-oxidation of oils, much the same as they do in gasolines.

B. *Polymerization.* Although of less importance than oxidation, polymerization does contribute to at least the apparent break down of the oil. The olefin to olefin polymerization is of some significance, but the combination of the oxygenated molecules with other similar molecules, accounts for most of the objectionable polymerization products. This is not true of all oxidation products but is most common to the peroxide. Many of the same factors which affected oxidation, such as heat, catalyst, and more significantly pressure, have a great deal to do with the type and speed of polymerization.

C. *Thermal decomposition.* This is the one cause of oil deterioration which may have been over emphasized. However, it is relatively important. The cyclic hydrocarbons usually stand higher temperatures and are said to have higher thermal stability than the chain paraffins, etc. High temperature can cause a rupture of the chain. Hydrogen also splits off and the carbon-to-hydrogen ratio is thus increased. Catalyst also play an important part in this decomposition and de-hydrogenation. Excessive overload and insufficient cooling increase the danger of thermal decomposition.

D. *Contamination from outside the oil system.* Carbon is one of the worst offenders in this respect, entering the oil from the combustion cylinder. This is especially true of the diesel engines which find it very hard to maintain comparatively complete combustion, conditions at different loads and various operating speeds, etc. This incomplete combustion of some diesel fuels accounts for a tremendous amount of carbon and carbon-like products on rings, in oil, etc., which are often unjustly attributed to the deterioration of the lubricating oil. Gasoline, lead compounds and just plain abrasives also contribute to the short life or at least the useful life of an oil. Water from the combustion cylinder or from a leak from the cooling system is also a common offender.

E. *Mechanical factors.* The lack of proper mechanical adjustment or the neglect of needed repairs may speed up all the above mentioned causes of oil deterioration. Likewise erroneous engineering may cause any one or all of them to be increased.

Effects

Considering the effect of each of the mentioned causes of oil deterioration:

A. *Effect of oxidation.* Nearly all of the undesirable properties of used oils can, to some extent, be attributed to oxidation. Many of the first oxidation products are known as "resins." While these resins are often soluble in the oil they sometime precipitate out in the most undesirable places and on account of their "gummyness" or ability to act as a binder they contribute a great deal to ring sticking by holding carbon and other insoluble materials which may come into the oil system from the combustion cylinder or as a result of further oxidation of the oil itself into insoluble sludge. Acids formed by oxidation of course are important.

However, it has more recently been shown that the peroxide content of the oil is more indicative of the corrosivness of a used oil than the amount of acid. Many of the acids formed seem to have very little corrosive action. Peroxides seem to attack any and all metals with which they come in contact. Discoloration and increase in viscosity is nearly always associated with oxidation.

B. *Effect of polymerization.* An increase in viscosity is quite obvious. It is possible that the polymerized peroxide referred to above is somewhat stabilized as a polymer while retaining the corrosive properties. This will lead to excessive corrosion.

C. *Effect of thermal decomposition.* The resulting products of even slight crack-

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ing are usually less stable than the original, as far as oxidation is concerned. De-hydrogenation associated with thermal decomposition increases the carbon like, insoluble material in the oil.

D. *Effect of contamination from outside oil system.* Carbon is perhaps the first thing we think of in regard to outside contamination and it is one of the worst offenders. Many oils are expected not only to hold their own carboneous oxidation products but carry away and hold in suspension a tremendous amount of carbon from incomplete combustion. While, as referred to above, this is most commonly associated with the diesel engine, it is by no means restricted to them alone. Many trucks and even passenger cars may be guilty of throwing this added burden on lubricating oil.

Crank Case Dillution

Especially in the winter time when gasoline engines are quite often flooded and with some of our more recent inefficient automatic chokes, unburned fuel gets by the piston and rings, washes the walls of the cylinder free of much of the film of oil it may have had and causes excessive crank case dilution. Much of the diesel fuel which enters the crank case is very corrosive after having passed through the combustion chamber, unburned or partly burned. While we still cannot all agree as to the effect of the decomposition products of tetraethyl lead, we must admit that it is possible these lead compounds may have something to do with oil deterioration. Water, a serious factor in the winter time and associated with short trips, can cause trouble. Many of the acids formed in oil are not nearly as corrosive until the water solution of them, is formed. Emulsions can also destroy much of the lubricating qualities of an oil.

E. *Effect of mechanical improprities.* Most everyone is aware of the fact that if the clearances in many of the moving parts of an engine differ a great deal from the manufacturer's recommendation we can run into lubrication trouble. Insufficient clearances can be a result of inefficient repair and replacement service. Too much clearance can be caused by the same inefficiency but most commonly is a result of normal wear. The allowable tolerance in this respect in many of our modern engines is confined to extremely narrow limits. Fortunately the manufacturer of the engine is usually sure that the moving parts can be lubricated under prescribed conditions before placing it on the market. Likewise the manufacturer of the lubricant is sure that the oil he recommends will lubricate properly within the prescribed conditions for the individual motor. Too often, however, the oil is expected to perform perfectly under operating conditions which the engine is not designed for, such as mechanical adjustment, excessive speed, tremenduous overload, inefficient cooling and many others.

Remedies of Oil Deterioration

Naturally remedies are of paramount importance. In reviewing the above causes, note that the consumer and designing engineer is responsible to a certain extent for oxidation and polymerization, to a greater extent for thermal decomposition, and almost entirely for contamination and various mechanical factors. The correction of most of these causes is quite obvious. By placing so much emphasis on the consumer and engineer's part in oil deterioration, it is by no means intended to imply that this gives the refiner any excuse to evade his responsibility and obligation to provide the best possible oil. However, the manufacturer of lubricating oil finds that the chemical composition of his oil and, to a certain extent, the catalysts involved is just about all he has any control over. Consider these briefly: The chemical composition of an oil is determined by the type of crude and by both the type and degree of refining. The conventional refining process and all solvent processes attempt to separate the more unstable and undesirable hydrocarbons from the more stable and desirable ones. It has been hoped and was even professed by some that the new solvent refining process would solve all lubricating oil problems. While some solvent treated oils showed many essential improvements such as apparent oxidation stability, wear still occurred with even the best solvent oils and corrosion was often many times worse than conventionally refined oils. This brought out the thought that not only is oiliness sometime sacrificed by type and degree of refining but desirable natural inhibitors may be removed. This lead to a renewed interest in additives which had been somewhat eclipsed by solvent refining. During the last few years many research laboratories have concentrated on additive research and today many oils depend largely on additive agents for their special performance characteristics. Most additives can be included in one or more of the five following classifiications: pour point depressant, oiliness or film strength, detergents, negative catalyst or metal de-activators, and oxidation and corrosion inhibitors.

Pour point depressants modify the wax-like hydrocarbons in their crystallizing and thus provide a less viscous and more pumpable oil at a lower temperature.

Improving Oil Strength

Oiliness or film strength, that property which enables an oil to provide a continuous film of oil between the moving metal parts, is often improved by additive agents. This type additive is especially required for some solvent oils which have lost some of their natural oiliness due to type and degree of refining. They are also required for those oils which are subjected to extremely severe conditions of lubrication such as pressure. Detergents are those additives which enable an oil to provide clean rings and crank case in spite of the oxidation products resulting from extremely severe oxidizing condition and carboneaous compounds from the combustion cylinder. Many of these are soap-like compounds of some of the heavier metals such as barium and enable the oil to better carry these objectionable compounds in a fine suspension in the oil itself.

Metal de-activators, oxidation, and corrosion inhibitors are closely related. For example, metal de-activators often coat the metal parts with a chemical-resisting material thus eliminating much of the catalytic effect of the metal which in turn retards oxidation and this reduces corrosion. Likewise true anti-oxidants retard oxidation, thus reducing corrosion which in turn decreases the catalytic effect of the metals.

Organic phosphites, sulphur compounds or phenolic compound are most commonly advocated as oxidation and corrosion inhibitors and metal passifiers. Experts in additive research like, U. B. Bray, consultant chemist in Los Angeles, Prof. Fenske of Penn State College and F. L. Moller of Standard Oil Development Company reported accordingly that the most successful oxidation inhibitors contain either phosphorous, sulphur or phenolic groups or some combinations of these. Sulphur is usually present in the sulphide form or linkage, while phosphorous should be in the trivalent state.

After observation of bearing corrosion of copper-lead and cadmium-silver bearings in 1934-1935 much work was done on metal passifiers preventing the reaction of organic acids and peroxides on bearings. Recently the viewpoint was accepted that bearing corrosion can be prevented by inhibiting formation of corrosive acids through the use of oxidation inhibitors. A further step toward reducing bearing corrosion was done by alkalizing oils before they are placed in the engines through the use of alkali metal salts of very weak or non-corrosive acidic bodies. These compounds such as the calcium or barium salts of high molecular phenolics present a source of reserve alkalinity which, exerts a neutralizing effect against the corrosive acids formed during use. Quite recently D. U. Denison, Jr., of Standard Oil Company of California discussed lubricating oil oxidation and corrosion and interpreted control of oil stability and corrosion of bearing metals as resulting from organic peroxides. Denison concluded that the addition of any agent which will reduce peroxide concentration will reduce oxidation.

Summary

Summarizing the remedies listed, it should be pointed out that the first necessary step is the selection of a suitable engine for the load and speed expected and one which can be lubricated.

Second: Regular, careful and efficient maintenance.

Third: Selection of proper oil.

Last, but by no means least, the oil must be changed regularly and at reasonable mileage. This reduces both the cause and effort of oil deterioration in most of the instances stated above and is especially necessary where there is excessive contamination from outside the oil system. Some operators, while attempting to save pennies on purchasing oil are loosing dollars on expensive maintenance.

Books on Subject

There are listed below a number of good references on oil deterioration:

1. "Addition Agents in Oils of Future."—Larsen, National Petroleum News, May 12, 1937, page 72.
2. "Improvements in Lube in Diesel"—Bray et al, Oil & Gas Journal, June 6, 1938, page 41.
3. "Improvements of Oil by Additives"—Foster, Petroleum Engineer, October, 1940, page 143.
4. "Oxidation of Petroleum Lube"—Davis-Lincoln-Byrkit, Industrial and Engineering Chemistry, 33, 339 (1941).
5. "Use of Additives in Lube"—Miller et al, Refiner, February, 1941, page 153.
6. "Oxidation of Lube Oil"—Fenske et al, Industrial and Engineering Chemistry, 33, (April, 1941), page 516.
7. "Lube Oil Development"—Bray, World Petroleum, 13, 8 (1942), page 78.
8. "Oxidation of Lube Oil"—Denison, Industrial and Engineering Chemistry, 36, (May, 1944), page 477.
9. "Decomposition Oil in Service"—Pomeroy, Journal of Institute Petroleum Technology, 30, (May, 1944), page 95.
10. "Modern Methods of Refining Lube Oil"—Kalichevsky (book), Reinhold Publishing Company.
11. "The Chemical Refining of Petroleum"—Stagner and Kalichevsky (book), Reinhold Publishing Company.

Substituting Adjustable Runway for Rat Hole Lowers Drilling Costs

Unique Device Found to Speed Up Operations Besides Prolonging the Life of Kelly Joint

TO PROLONG the effective life of the kelly and at the same time speed up routine drilling operations on the rig floor, one company currently engaged in the drilling of a number of shallow wells with one of the newer types of portable slim-hole drilling units, devised and built up a novel but most efficient runway down which could be carefully laid this hard-to-replace tool each time a joint of pipe was added to the string in the hole.

While runways of this general type are not uncommon in oilfield practice, this has particular interest in the flexibility of use and ease with which it may be broken down and transported, as well as the means by which it is tied to and adapted to the rig itself.

Adjustable to Any Slope

The runway consists of two lengths of 10-inch channel iron bolted together in the middle to form a single chute accommodating the longest kelly that might be used on the rig. Figure 1, showing kelly lying in the channel, illustrates how channel sections are supported at five to six points along its length, including a special swivel support mounted several feet above the edge of the derrick floor.

The supports consist of pairs of upright lengths of specially-prepared pipe which allow for a wide adjustment of height of the chute. The horizontal member upon which the runway rests consists of varying lengths of 3- or 4-inch pipe (depending upon which pair of supports it happens to be on), to each of which has been welded at each end a short perpendicular section of a similar-sized pipe which serves as a sleeve that slides up and down the corresponding upright legs of the supporting members.

Each of these sleeves has a hole drilled through from both sides and through which a ½-inch steel pin may be inserted, securing it an any desired height along the upright section. The latter is also drilled with corresponding holes, but have some six or eight of them spaced at 4- to 6-inch intervals along the particular height range in which it will be operated. Each of the adjustable sleeves has welded to it a short length of chain to which is attached the supporting pin, assuring that this important item will never become lost or misplaced. Near the rig, the two upright members of each pair of supports are spaced close together, being just wide enough to support the runway. Each support beyond, however, grows progressively wider until the last ones are some three feet wide.

This allows the runway to be swung through a considerable angle to permit adapting it to drawworks and rig floor arrangement or to minor exterior conditions such as topography or surface installations.

Pivot Allows Lateral Shifting

An interesting pivot arrangement holds the runway assembly to the side of the derrick floor (Figure 2). Built with the prime purpose of easy dissembling and moving, the end of the chute rests on a pivot consisting of an angle iron cross-member to which in turn is welded on the bottom a tee-shaped section welded together from 2-inch extra-strength pipe. The vertical member of the latter slips through a short vertical collar that is welded to the supporting member as illustrated.

The supporting member consists of an inverted U-shaped pipe assembly that extends down to ground level and is anchored to that one position by slipping its legs through corresponding sleeves welded to the side of the rig

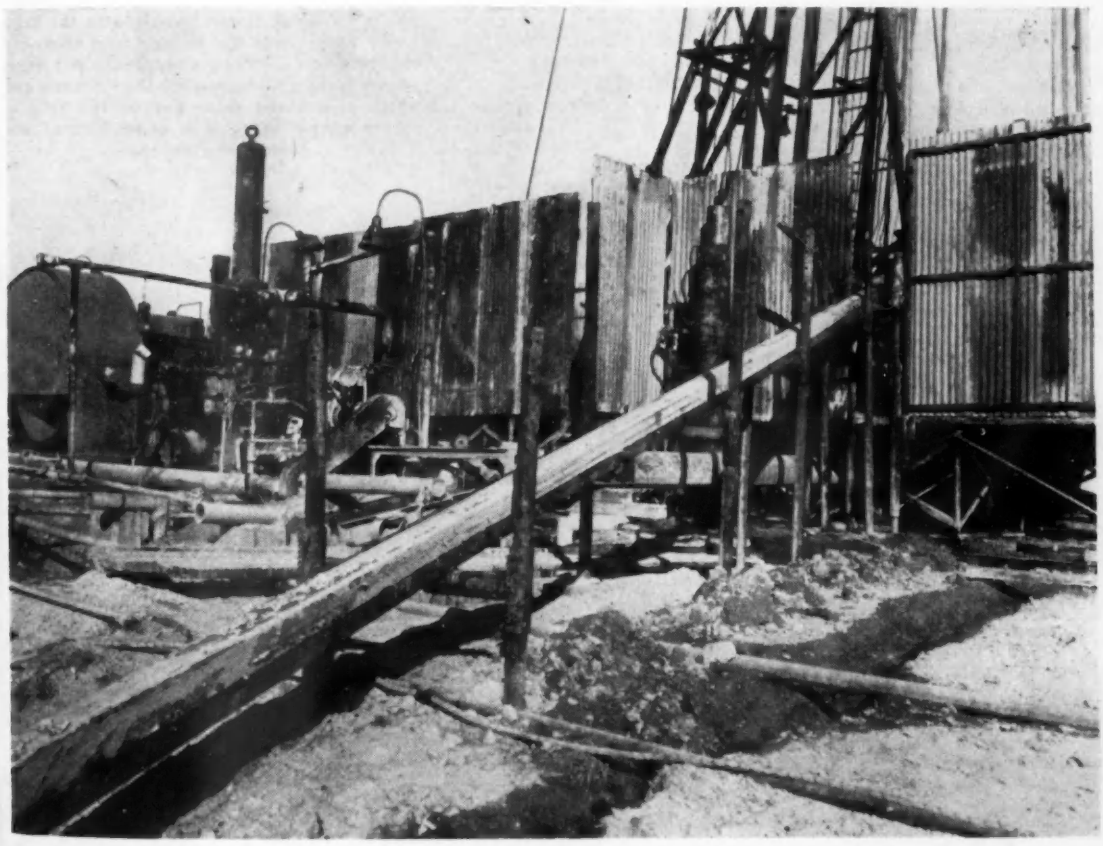


FIGURE 1

Two 10-inch channel irons, bolted together endwise to form a long chute, are supported at an angle to the rig to provide a slide into which the kelly may be run and laid down without requiring the digging of a rathole or the hazardous alternative of standing the unit in corner of the derrick.

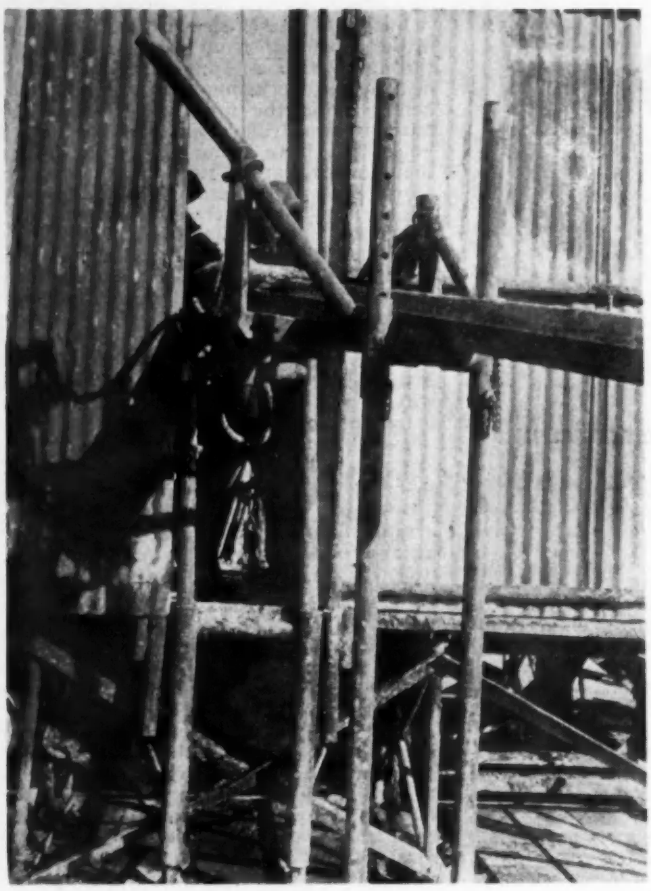


FIGURE 2

Close-up of the derrick end of the kelly chute, showing the adjusting holes for the transverse members and method of retaining pins on the job with short safety chains. The pivot-mounting for the end of the chute, which permits it to be set up without previous alignment with the rig, may be seen under the upper end of the chute, as may be the outboard roller unit for guiding kelly onto the support.

understructures, thus assuring a permanently spotted position to which the runway can be attached in a few minutes without need of measuring or welding at each new location. The head of the chute stands six to seven feet above the ground at the derrick floor end.

A special fitting and roller is placed on the end of the kelly before it is slid down the chute. This not only protects the kelly joint threads and keeps them clean, but greatly aids in lowering the joint. The thread-protector fitting (Figure 3) has welded to its forward end a heavy axle and pair of small rollers. the latter being just wide enough apart to conveniently fit inside the channel. To prevent possibility of the kelly "running away" should the joint slip down a little too fast, a short section of angle iron is bolted inside the channel a short distance below the maximum expected extent of reach. For kellys of greater or lesser length, the stop is easily removed and replaced where needed.

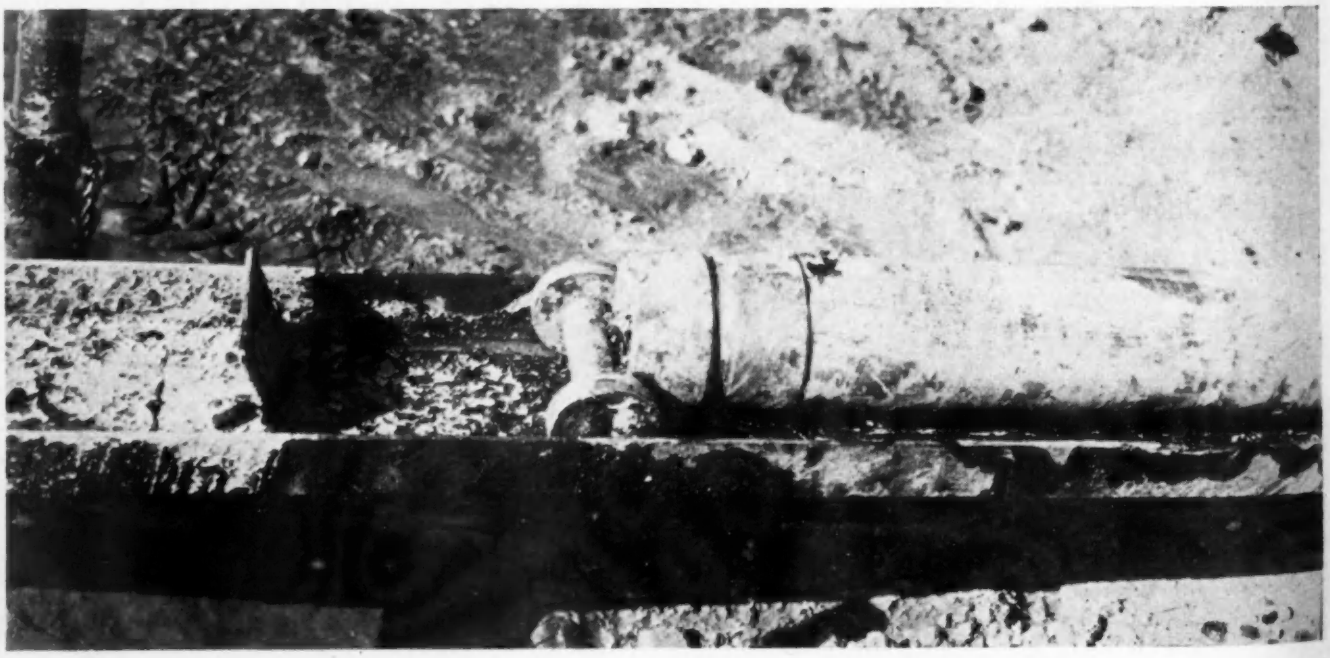
Considerable time is saved in handling the kelly with this new chute assembly. On small rigs drilling shallow, low-production wells, where it does not pay to dig and case a rat-hole, this slide arrangement serves equally well, and there is no danger of the joint being injured through nicking or warping if it is handled with reasonable care while lowering it down the chute. The swivel is, if anything, somewhat more accessible for service and repairs as it lies in a near-horizontal position out near the edge of the derrick floor. A backup post and block secured to the head of the chute aids in guiding the end over to the channel and enables the crew to haul the joint a little farther out on the rack if needed when the drawworks line has been pulled out as far as it will conveniently go, the supporting rollers out on the end of the joint permitting easier movement until it is actually laid down along its full length.

Proof of Merit

That the company drilling with this arrangement finds it to be economical and an efficient means of handling the kelly, is excellent proof of its merit, especially in view of the fact that the shallow holes being drilled are largely soft sediments, and additions of drill pipe joints, with accompanying breaking out and laying down of kelly each time, during the course of drilling are unusually frequent in proportion to other drilling conditions. Outside of the channel sections, the actual cost of materials is slight, they being salvaged from other lease activities, and fabricated in the company welding shop. Because the assembly is so easily broken down into small pieces, the problem of transportation from one location to another is negligible.

FIGURE 3

The dolly which screws loosely onto the kelly joint and protects the threads from injury, at the same time affording a supporting unit which is guided by the flanges of the channels and which carries the outer end of the kelly in proper alignment as it is being lowered into place within the chute.



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Details on development of new oil fields in England revealed and disclose that of nearly 400 wells drilled 253 are producers with nearly one half in Eakring. Light equipment speeds up completions as nation cries for petrol

British Use Time-Saving Drilling Methods

By DON L. CARROLL, Staff Writer

RELEASE of some of the details concerning the development of a number of small oil fields in England during the war period has revealed the application of many interesting time-saving methods.

Before the outbreak of the war it was generally known that small discoveries had been made and partly developed in Hampshire, Lancashire and Nottinghamshire. Anglo-Iranian Oil Company, through its subsidiary, D'Arcy Exploration Company, has since been carrying on active exploration and development operations in these and other areas. During 1943 and 1944 most attention was concentrated in the area west of Nottingham, where four small fields are now producing most of England's indigenous crude oil, at the total rate of approximately 2700 barrels per day.

Up to October, 1944, 387 wells had been drilled, of which 253 are producers. Nearly half of the wells are in the main field at Eakring. Nearby are the smaller fields of Duke's Wood, Kelham Hills and Caunton. Forty-five wildcat wells were drilled in various localities during the last 4 years.

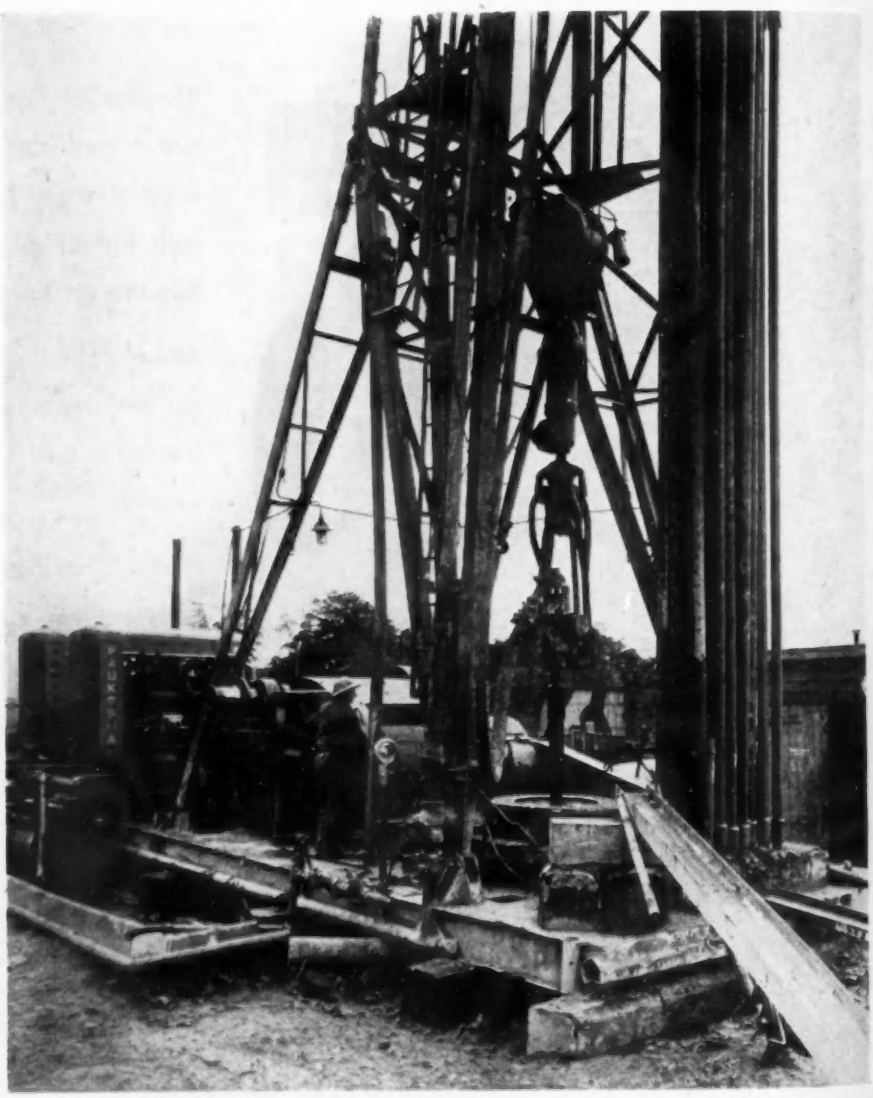
Only heavy duty rigs and derricks were available for the work in England up to the end of 1942, when lighter equipment was obtained from the United States, thus allowing more rapid development of the proved areas in Nottinghamshire, where producing depths range from 2000 to 2500 feet, with upper Mississippian and lower Pennsylvanian pays.

Speedy Drilling Required

England's desperate need of petroleum supplies necessitated speeding up of the drilling program and utmost conservation of materials. Timber platforms were substituted for concrete foundations, and rigs were converted to electric power. Water and mud lines were run to each new location, the water lines being used as production lines after each well completion. In spite of the use of heavy derricks and rigs, completion time was reduced from 9 weeks in 1940 to 5 weeks by the end of 1942, two weeks being required for moving and setting up again. Some drilling was done with production derricks and improvised rotary equipment.

In 1943 Anglo-Iranian Company enlisted the services of four complete United States drilling crews. Four unitized American drilling rigs were shipped in, to be used with 87-foot masts and 4½-inch drill pipe. With these outfits the first 10 wells drilled, averaging 2200 feet, were completed and put on production within an average time of one week.

Average drilling time on these wells was 62 hours, for 8⅝-inch hole, or 31.9 feet per hour. The time for a complete trip for bit changes at 2000 feet was cut down to 50 minutes, from the time that drilling was stopped until it was resumed. Less than 8 hours were required for pulling out drill pipe, running casing



Drilling at the British Oilfield where 1000 men are now employed

All pictures are British official photos, courtesy British Information Services.

Derrick over Britain's deepest oil well

and cementing. Shut-downs for cementing lasted 48 hours, after which wells were drilled-in and completed in an average of 28.6 hours, with liners, tubing and rods in place. Night drilling, incidentally, was done under "dimout" rules.

Operation of the light rigs was speeded up by using cat-heads for spinning up the drill pipe, with spinning chain. Power equipment consisted either of two 169-horsepower diesels or two 150-horsepower electric motors.

As a result of the use of the drilling masts and unitized draw works, the time required for moving was reduced to 12 hours, as compared with 2 weeks in the case of the heavy exploration outfits previously employed. A record move of 6½ hours was made in the Eakring field, and on one job a complete outfit was moved and 960 feet of hole made in the space of 24 hours.

Rock Bits Used

Various types of drag bits were tried out in drilling the first few wells, since they could be manufactured in England. It was found, though, that rock bits would have to be used exclusively—shipped over from the United States. For a while, Coal Measures shale was ground to make mud, and bentonite added. Bit footage was later improved by starting wells with clear water and only a small amount of bentonite, working the mixture up to 1.2 specific gravity, or 75 pounds per cubic foot. Bit footage was thus boosted from an average of 100 feet per bit to 360 feet. Record performance to date is 800 feet drilled with one bit. All bits are reconditioned after use and are not allowed to be worn out.

Lost circulation was common in the earlier wells in drilling through the very porous lower Triassic Bunter sandstone, and mud cakes were built up on the walls in this formation. This condition necessitated very careful mud control. Since commercial coal seams are present in the bedrock section within the oil-field areas, extra precautions were taken in drilling and cementing.

The wells drilled with the heavy outfits used at first were 14⅛ inches in diameter through the Bunter sandstone and 10⅝ inches down to the casing seat above the first oil sand—about 2000 feet. Here 8⅝-inch casing was cemented, with cement returns all the way to the surface to assure protection of the coal seams. With the lighter rigs used later, wells were completed with 6⅝-inch casing and an 8⅝-inch hole, at great savings in steel per well.

Field Conditions

Each of the four small fields so far developed in Nottinghamshire consists of a simple domed structure, with minor faults, with four commercial pays in the section below the Coal Measures. The thickest pay is the Rough Rock, a basal "Pennsylvanian" sandstone, varying from 50 to 100 feet in thickness. All the pays are present within a 500-foot vertical zone. Only in the Eakring field are all four pays worth developing. The most extensive pays are thin sandstone beds in the upper Mississippian millstone grit series. The oil column has not exceeded 260 feet in any of the wells.

A 500-foot spacing pattern was followed in preliminary drilling. Present practice, however, is to put in one well for each 2½ acres at Eakring, and for each 3 acres in the other fields. Locations have been re-staked accordingly. Initial well production varies from 7 to as high as 375 barrels daily, although inside locations give wells with initials equal to the settled average of the field, indicating high permeabilities in the sands. Gas oil ratios have averaged 15 to 1. Each of the oil sands has an effective water drive.

The crude oil is of mixed base type, low in sulphur but high in paraffin (double the paraffin content of average Mid-Continent crude). There is no elemental sulphur in solution in the crude.

Operating Practice

All wells in the new fields are completed on pump, although a few have flowed for a few hours. Two-inch and 2½-inch tubing sectional liner pumps are used. The pumps are standard 5 x 2 x 1¼-inch, run on 2-inch plain tubing and operated by ⅝-inch sucker rods, with individual electric motors. Oil is pumped to gathering stations through

Core of rock is taken out of the drill at the deepest well in England, drilled to 7476 feet into basement rock at Eakring.

Generalized Geological Section at Eakring

Keuper	Marls and Sandstones, 200-500 feet thick.
Bunter	Water-bearing sandstones, 400-800 feet thick.
Shales and Marls	200 feet thick.
Permian Limestones	150 feet thick.
Carboniferous	Coal-bearing series, 700-800 feet thick with Coal Seams a few inches to 6 feet in thickness.
Grit Series with Oilsands	500 feet thick, with shale bands and fire clays, the main oil horizon being the Rough Rock 50-100 feet thick.

Analyses of Eakring Crudes

	Rough Rock Crude	Lower Producing Sands Crude
Specific Gravity @ 60° F.	.848	.828
Distillation:		
I.B.P. °C.	51	37
Percent Volume to 100° C.	3.5	8.0
200° C.	21.0	27.0
300° C.	35.0	46.0
Total Distillate, percent	36.5	46.0
Residue, percent	61.5	50.5
Loss, percent	2.0	3.5
Distillate Specific Gravity @ 60° F.	.778	.770
Residue Specific Gravity @ 60° F.	.892	.884
Sulphur, percent	0.18	0.07
Pour Point, °F	.....	50
Temperature at which wax deposition commences, °F	85	80
Viscosity @ .70° F. e.s.	.....	15.09
80° F. e.s.	.....	8.97
85° F. e.s.	.....	.....
100° F. e.s.	.....	5.33
120° F. e.s.	.....	4.27
122° F. e.s.	.....	.....
150° F. e.s.	.....	.....

2-inch lines, with one station for every 40 wells. Gathering stations comprise two 750-barrel tanks and water separators. There are 13 miles of main pipeline to the central railroad loading racks and tank farm. The latter comprises four 2500-barrel tanks.

While gas-oil ratios are small, the gas is nevertheless collected from all wells, at the well heads, at the total rate of 160,000 cubic feet per day and piped to an adsorption plant in the main Eakring field, where gasoline is recovered and the dry gas returned to the gathering stations for use as fuel. Slightly more than one gallon of "knock free" gasoline is recovered from each 1000 feet of gas.

To save steel the earlier wells were completed with open hole in the producing zones. Caving of the clays in the pay zone prevented the lowering of pumps below the casing seats. Gravel fills were tried next, but it was finally decided to place 4½-inch perforated liners (½-inch holes with 12-inch spacing). This practice allows the pumps to be set as low as required, but fluid levels are maintained so as to cover the sand and prevent the lowering of oil temperatures below the point where wax settles out.

Fluid recoveries run about 30 percent water, necessitating special separation methods. The oil-water fluid is passed through separators containing balsam wool packing, at a flow rate of 5 feet per hour. An emulsion breaker is also added to the fluid. Water is thus reduced to 1 percent.

Wax difficulties are also encountered, since the wax comes out at temperatures below 80° F. It has been found necessary to insulate tubing in the wells down to 1000 feet, and to go-devil all surface lines daily. Well tubing is electrically heated to keep the wax fluid.

To increase production, acidizing, water rocking and shooting have all been tried. Shooting, with 400 pounds of nitroglycerine, has become standard practice, resulting in production increases up to as much as 200 percent.

A pumping well in the British oilfield

A trainload of oil leaving the loading terminal at the British oilfield railway siding.

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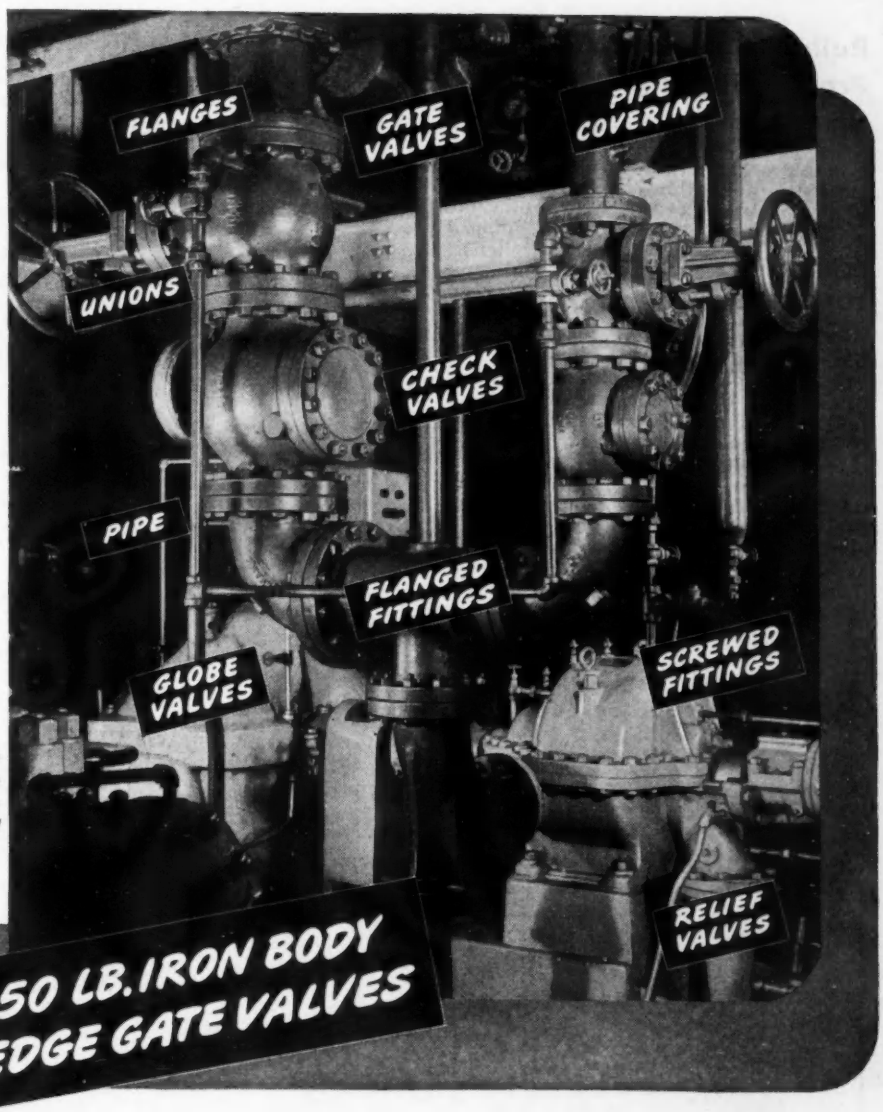

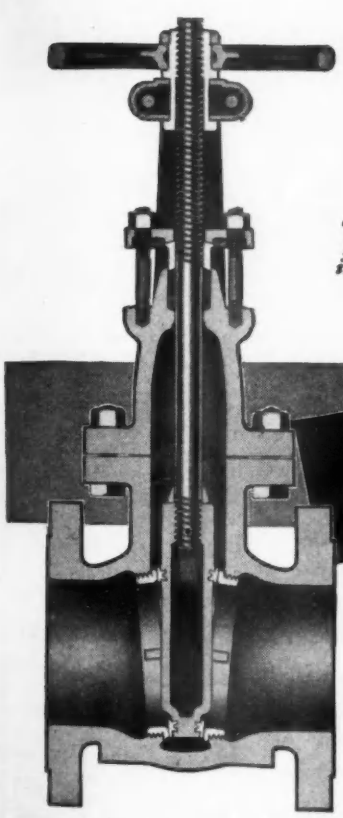

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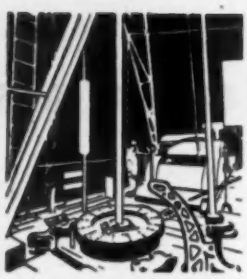
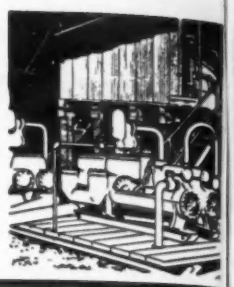


OPERATING HINTS *For Drilling Crews*

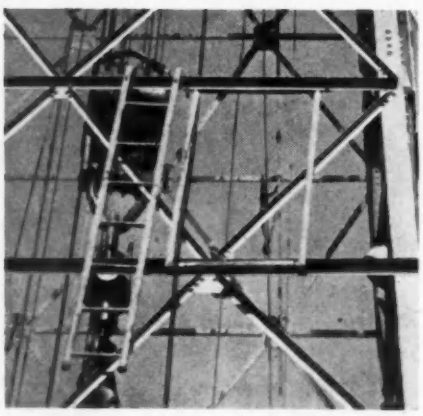


Roller-Equipped Window Protects Rig High Line

The high-line on the modern steel rig is subjected to unusually heavy abrasion as it passes up through the rig between the cathead and the crown. One operator devised a transom-like framework equipped with a wide roller at its lower end and installed it between two girts on the drawworks side of the rig a quarter of the way up the derrick. Made of scrap 2-inch pipe, the assembly is four feet wide and slightly longer than the normal 7-foot width of the space between two girts. Over the lower of the two horizontal members is a pipe roller. Due to the slightly greater length of the framework, this roller projects outside a bit. The line comes up from the drawworks through an aperture in the roof structure outside the derrick, and at the roller, crosses inside and continues on up the derrick. This easily constructed "window" is quickly made and may be secured to the upper girt by means of only two U-bolts.

DERRICK SOFT LINES

Also illustrated is one of a removable pair of short ladders hung on two opposite sides of the derrick, and through the rungs of which may be placed planking. The stabbing man stands on this adjustable plank while running in casing, and, depending upon the range length of casing, the ladders may be hung at any point in the derrick and still have a range of some six steps in which the planks may be placed.



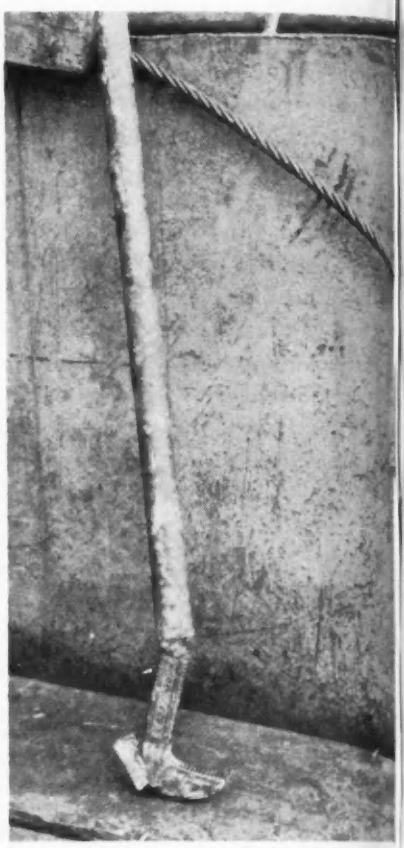
This window, set into derrick where catline enters frame, provides rollers at contact areas.

Improved Pinch Bar Speeds Pipe Racking

Barring a stand of pipe over against its neighbors, once the elevators have released their load, is a task which cannot be slighted if proper stacking of long strings of pipe is to be accomplished. And, since sledging the pipe to drive it over against its neighbors is frowned on very severely by most companies, the job becomes one of applying force through some sort of lever. A favorite tool on some rigs is a 36- or 48-inch pipe wrench, on the handle of which has been slipped a "cheater" or pipe extension. This expedient carries the objection of bringing the pipe-racker's fingers too close to the pipe for safety, and the fact that the heel or fulcrum is narrow and not properly curved to maintain the desired leverage.

RACKING DRILL PIPE

One driller solved this problem by welding a salvaged movable jaw from a pipe wrench to a length of extra heavy pipe, making the weld at an angle so as to afford hand clearance at the grip. To the heel of the wrench was welded a salvaged slip jaw, so as to afford a skid-proof heel for the bar when the jaw had taken the weight of the stand. By taking the weight on this bar, and swinging the wrench handle to one side, the end of the pipe may be inched into place—all by one man and without damaging the pipe or incurring the risk of crystallization as would be the case were the joint sledged into place.



Pipe wrench jaw, heavy pipe and slip block are combined to form safe and powerful lifting bar.

Extensible-Base Jack Snubs Mud Line Vibration

Whip of the mud line to the standpipe, especially when drilling at depths requiring pressures over 2000 pounds, may become severe enough to cause leaks in joints, or even to break the line through crystallization under vibration. Anchorage of the line against motion is sometimes difficult, especially when the line must be carried below the sills to afford desired clearance for other operations.

MUD LINE ANCHORING

One contractor solves the problem of holding the mud line by making a saddle of pipe which will snugly span the mud line, welding a collar to the outer arc of

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For oil field, locomotive type and marine boilers. Water shows black — steam shows white; the water level is unmistakable. U-Bolt construction is strongest and simplest to service. Glass replaced by simply removing nuts on face of gage . . . unnecessary to work between gage and boiler. Conforms with A.S.M.E., Federal and State requirements when used for pressures specified by their respective codes.

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PENBERTHY INJECTOR CO.

DETROIT, MICH. Canadian Plant WINDSOR, ONTARIO

CASING PROTECTORS • STABILIZERS • PIPE WIPERS • WIRE LINE GUIDES • WIRE LINE WIPERS • KELLY WIPERS
KELLY SUB PROTECTORS • MUD GUNS • MUD GUN NOZZLES • SWIVEL BAIL BUMPERS • DEAD LINE STABILIZERS
TRAVELING BLOCK BUMPERS • TUBING PROTECTORS • SUCKER ROD WIPERS • TUBING WIPERS

New

PATTERSON-BALLAGH

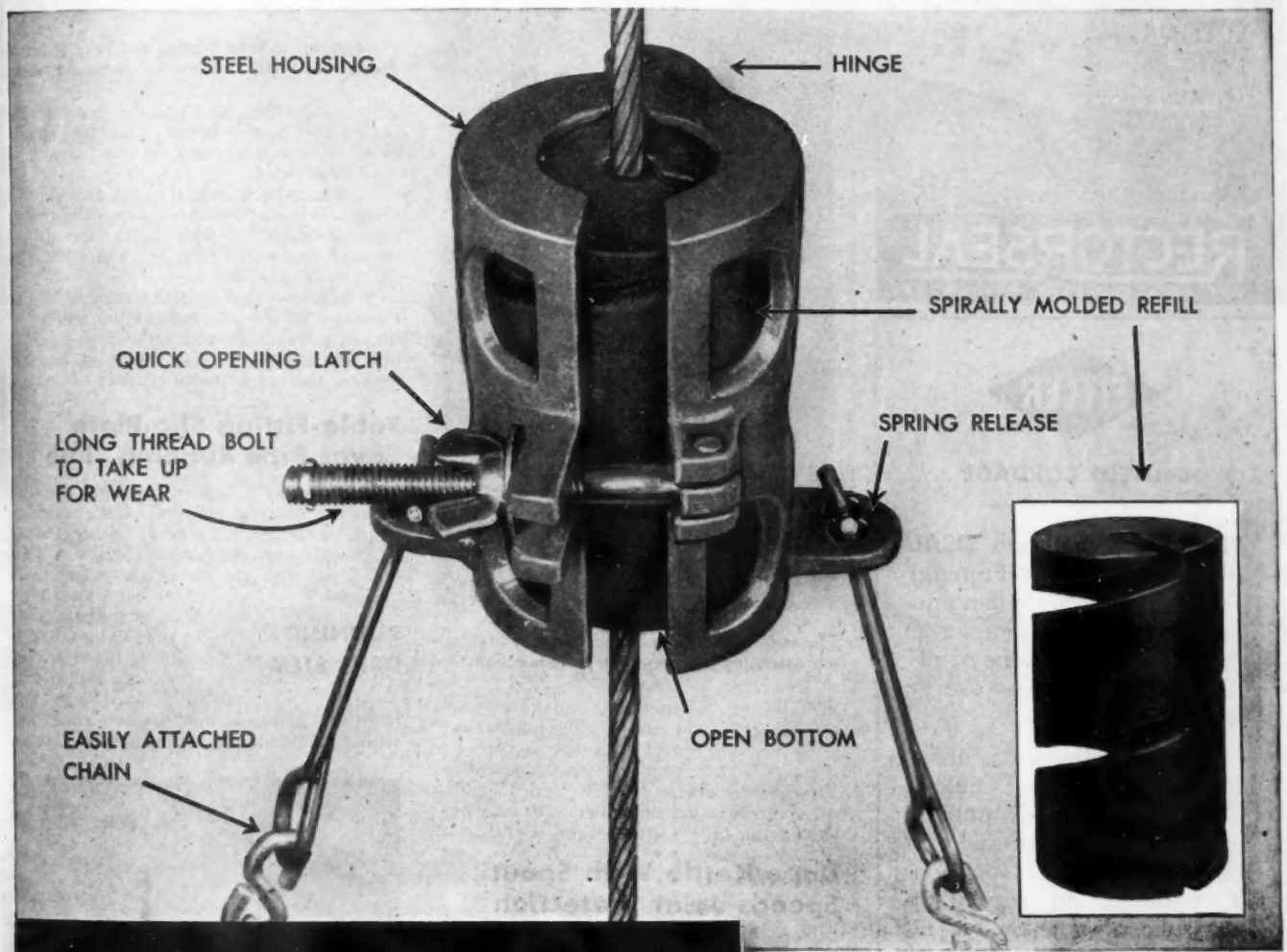
WIRE LINE WIPER

NOW MADE OF PBX SYNTHETIC RUBBER

When it comes to keeping wire line clean, the new PATTERSON-BALLAGH Wire Line Wiper does a most efficient job. Smart operators specify its use in wiping mud or oil from the wire line being withdrawn from drilling or producing oil wells.

The wiper is an easily replaceable, inexpensive refill element, spirally molded of PBX rubber, which effectively grips the line with minimum friction. No seams are exposed. No metal contacts the line. There is nothing to create a "fishing" hazard. There are no delays, as the Wiper automatically disengages as the tool comes out of the hole.

See Composite Catalog



PATTERSON-BALLAGH
OIL FIELD SPECIALTIES

"Best Bet Yet"

PATTERSON-BALLAGH

LOS ANGELES 1 • HOUSTON 10 • NEW YORK 6

PREVENT LEAKS—

and you won't have to stop them . . .

Plugging up leaks after they start is somewhat like closing the gate after the horse is gone. RECTORSEAL, applied to connections . . . threaded, coupled or gasket . . . when they are made up, stops leaks by preventing them. It forms a permanent leak-proof seal, impervious to oils, gases, salt-water and dilute acids. It retains its plastic, elastic consistency for the life of the connection, and permits easy breakout of joints. RECTORSEAL is a definite money-saver. Begin using it now on all connections. Your supply store has RECTORSEAL in convenient sizes to fit your needs.

RECTOR WELL EQUIPMENT CO., INC.
Ft. Worth Natl. Bank Bldg., Ft. Worth, Tex.
Export: Lucey Export Corp., Woolworth Bldg., N. Y. C.

RECTORSEAL
THE POSITIVE LEAK PREVENTER

FITLER

OILFIELD CORDAGE

FITLER MANILA and **SISAL ROPES** are on the Fighting Front. They are helping to hasten the day when these fine ropes will again be available for everyone — everywhere.

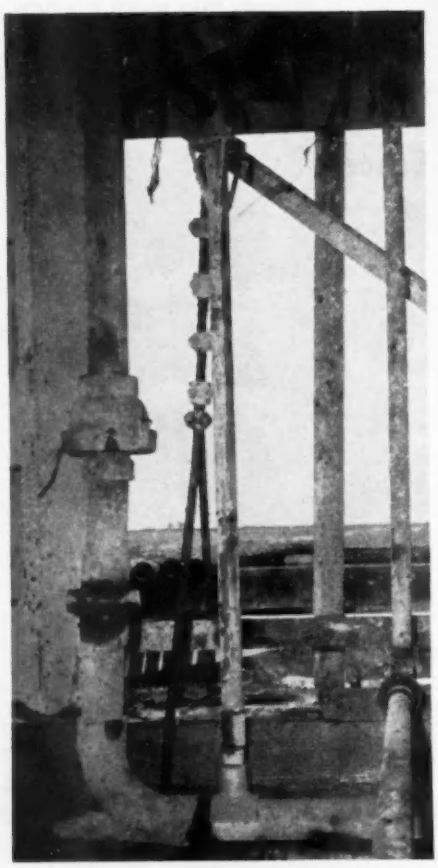
Should your Dealer be short of some items of our Oilfield Cordage, please be patient with him as we are doing our best to keep him supplied from the limited amount of fiber allocated us by W.P.B. for Oil and Gas Well Drilling End Use.

• BACK THE ATTACK •
• BUY MORE WAR BONDS •

THE EDWIN H. FITLER CO.
PHILADELPHIA, PA.
Established 1804

the saddle to take extra-heavy 3-inch pipe. A nipple and second collar provide for varying the length as desired, a short joint of pipe screwed into the second nipple being provided with an extended foot to which is welded the base of a screwjack.

To hold the mud line in place, the saddle is placed vertically over the pipe, and the jack screwed out to exert pressure against the under side of a derrick floor sill. By providing a solid footing to support the pipe, any desired pressure may be put on it to hold it in place against pump pound. Likewise, the nipple between the two collars may be so chosen that the amount of thread exposed on the jack screw need be only the minimum to take up slack, affording a rigid and lasting holddown.



The saddle, short nipple and two couplings permit extending jack base to meet foundation span.

By welding braces from the jack foot to the pipe some distance below the point of support, the device is safeguarded against off-center loading or tendency to cant over should the pipe slip sideways slightly.

Dope Kettle With Spout Speeds Joint Protection

Dope for the joints of the drill stem is kept in a pot fabricated especially for the job on one deep-drilling rig. The pot is supported on three legs so as to bring the brush holder at the proper height for easiest pick up by the rotary helper, the legs being set at an angle sufficient to insure stability, even against considerable force.

DOPING THREADS

At the front of the pot is welded a shallow attachment, little more than deep enough to accommodate the bristles and wide supporting base of the brush. This pocket holds the brush with the handle clear of the dope and in position to be readily grasped.

Wide spout, to take bristles and base of brush, drains into kettle and avoids compound waste.

To drain back into the pot any surplus dope which may be carried into the pocket on the brush, ½-inch holes are drilled through the wall of the pot along the base of the brush-holder.

A bail, swiveled in heavy ears welded to the sides of the pot, permit the unit to be moved without contacting the dope-smeared unit itself, and facilities placing and removing the pot between periods of use.

Table-Fitting Slip Plate Saves Pipe Running Time

To lighten the task of handling the slips from the bushing into the clear, and back again to engage the pipe as the next stand is placed, one company provides a plate which fits over the top of the rotary table, extending out to the edge of the stationary section. This circular plate or disk, with a notch cut to enable it to be placed when pipe is in the slips, is made heavy enough to withstand pounding as the slips are dropped.

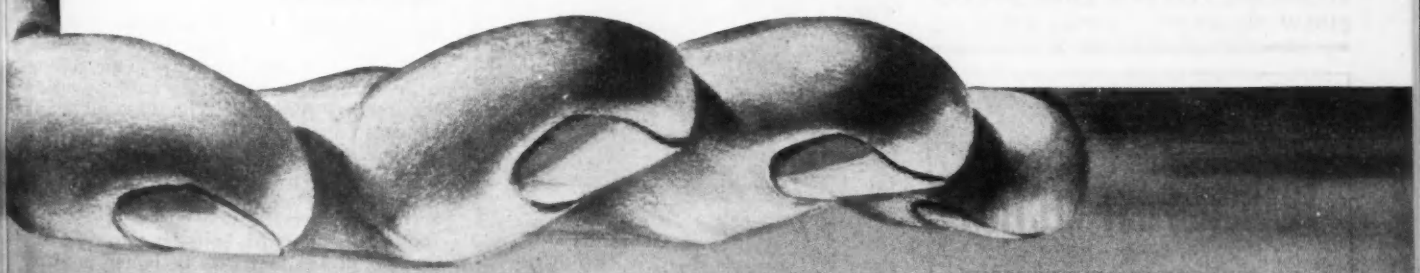
RUNNING DRILL STEM

Two semi circular pins fit master bushing and center driving disk while pulling or running pipe.

Another Great Leader in a Great Line... FWD's Model SU

Famous 5-Tonner Tops

$ 75,000,000.00 ENDORSEMENT



When a single model of a heavy duty truck is purchased in volume reaching a total dollar value of $75,000,000.00 in less than four years time, it rightfully gains leadership in its field. FWD's Model SU has won an extraordinary recognition—the endorsement of motor truck buyers exemplified in $75,000,000.00 worth of trucks bought and used since 1940.

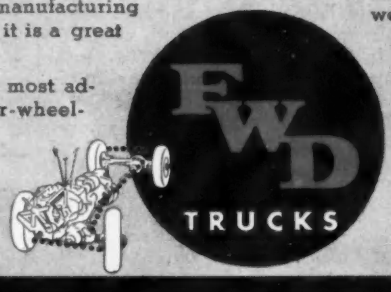
It is significant, too, that in a comparatively brief period of years this single model FWD has a background of $75,000,000.00 in manufacturing experience as well. In every sense it is a great leader in a great line of trucks.

The FWD model SU represents the most advanced development of the four-wheel-drive principle originally pioneered and sponsored by FWD since 1910. It is eminently qualified in every element of design and construction to render service of a character and extent far beyond that of any other truck.

More than ever before essential industries and motor transport organizations rely on Four-Wheel-Drive hauling power to do more work—cover more miles—at lower cost for gas—oil—tires—replacements.

When your need is dependable all-season, all-weather hauling power — look to FWD's — a great line of trucks.

THE FOUR WHEEL DRIVE AUTO CO.
Clintonville, Wisconsin
Canadian Factory: KITCHENER, ONT.



BEST AND ORIGINAL EXCLUSIVE

BUILDERS OF FOUR-WHEEL-DRIVE TRUCKS

LOAD BINDERS

5 — Sizes — 5

Take from ¼" to ⅝" Chain

For details see page 810 Composite Catalog

DURBIN-DURCO

6611 Olive St. Road

ST. LOUIS 5, MO.

Powerful BEAM

or Bright

FLOODLIGHT

WHEN YOU CARRY

ECOLITE 72

This is a safe, efficient economical lantern that gives you a strong 1500 ft. beam or a bright flood-light. It is easy to carry, tilts and pivots, gives you lots of light where needed. Carries Underwriters' Laboratories recommendation for use in Class 1 Group D Hazards. Low price. See it at once. At Oil Well Supply Stores.

ECONOMY ELECTRIC LANTERN CO.

3100 W. CHEERY ST. MILWAUKEE 8, WIS.

BE SURE TO CHECK . . . .

TRADING POST SECTION

ON PAGE 77 OF THIS ISSUE

Because of the scarcity of certain types of new equipment and the fact that some operators may have a surplus of some items and a serious shortage of others, this **Used Equipment Forum** is performing a valuable service to operators in locating needed used materials or disposing of surpluses that may be needed by others.

on it, and also to resist deformation as the table is spun rapidly when breaking out.

Two spuds or dogs, of extra-heavy pipe, of the proper size to fit the drive holes of the master bushing, serve to spot the disk on the table, to insure its rotating properly with the unit, and to maintain the proper clearance for the slips.

By making the spuds semi-circular in shape, ample driving face is provided, without the possibility of the unit jamming; as might be the case where the full circle used and the bushing apertures muddled up when running a dirty string of pipe.

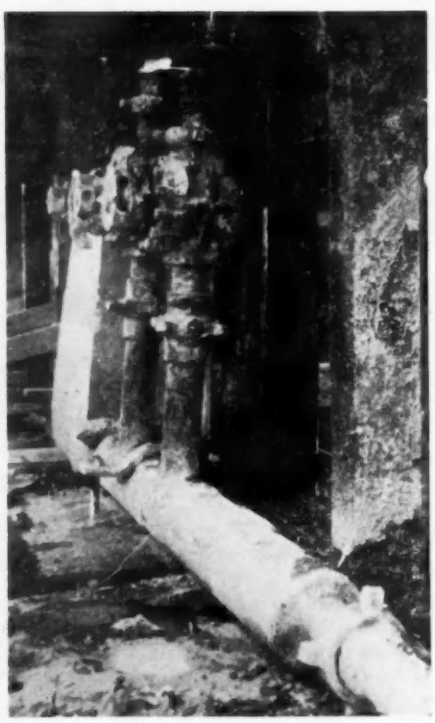
Ground-Level Mud Line Mounting Cuts Vibration

Instead of mounting the twin standpipes on the derrick floor, where more or less pump vibration is transferred to the derrick, one contractor brings the mud header in along blocks set in the ground, connecting a section of 6-inch pipe with 6 x 4 swage at the end of the horizontal run.

STANDPIPE MOUNTING

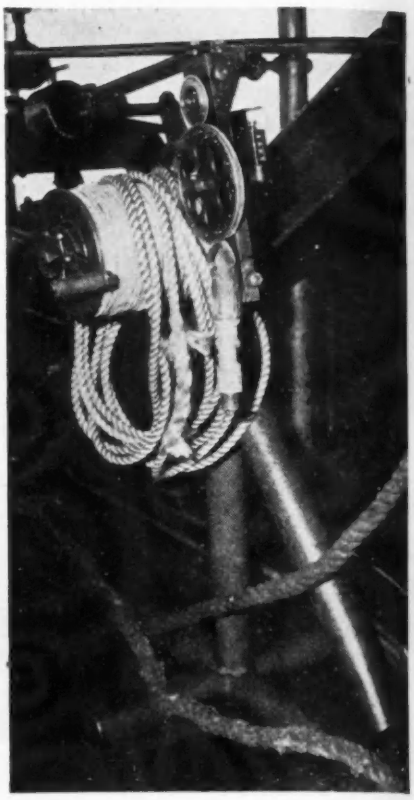
This 6-inch section carries short vertical stubs, each equipped with quick-acting union, on which are mounted the emergency valves and standpipes. Through these units the entire downward thrust of the pipes is carried by the base supports, while the lines are carried free through the floor and up to the first clamp around the derrick leg.

Through this mounting, any lengthwise pounding of the line from pump impulses is dampened out by the spring of the vertical standpipes, and derrick vibration from drawworks and rotary operation is not communicated to the mud system close to any joints—making for longer life of threaded connections and freedom from crystallization at nodal points.



Enlarged section of mud line, carried on wide footing, supports twin standpipes free of derrick.

Measuring Line Stand Provides Rigid Support



Cross of heavy pipe with welded plate footings provides firm mounting for high-speed reel.

If the measuring line reel be driven at proper speed to avoid loss of time when running single-shot surveys or thermometers, the unit must be held solidly to permit the use of a loop of line over the cathead as driving mechanism.

INSTRUMENT EQUIPMENT

One contractor spends more than the usual amount of time and care in the making of a sturdy, neat appearing base, on which the reel is mounted. The base or stand consists of a cross of heavy 2½-inch pipe, the bearing surface of the pipe being extended by welding 5-inch strips of tank steel along the pipe to distribute the load across the derrick flooring. Slots in the footings match with bolts let into the floor timbers, so the unit may be bolted in place or, by removing four nuts, may be quickly set aside to clear the floor for other work.

To take the pull of the drive rope, a brace extends from near the top of the pedestal to the end of the front "toe" of the cross.

When mounted on this base, the measuring line reel is firmly held in place, insuring even tension on the wire as it is wound in or fed out, and simplifying the task of proper spooling.

$5.00 is paid for each illustrated acceptable contribution. Mail to The Editor, THE OIL WEEKLY, P. O. Box 2608, Houston 1, Texas

A NEW

FINANCIAL

SERVICE

Your City National Bank Announces the opening of an

OIL and GAS *Department*

• Through this department, headed by Mr. George L. Nye, an experienced oil executive, we desire to come into closer contact with, and to service, the financial needs of those who are associated with petroleum operations.

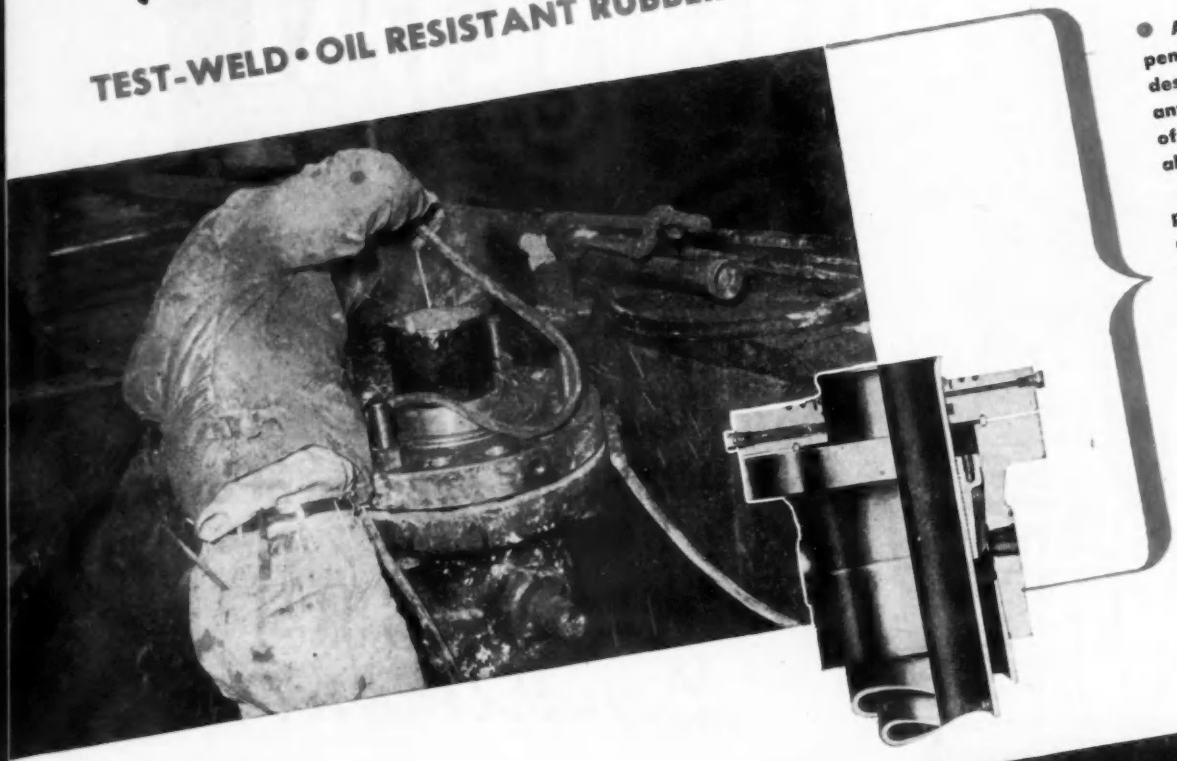
THE CITY NATIONAL BANK

HOUSTON

CAMERON CASING HEADS

Provide Three Interchangeable Casing Seals

TEST-WELD • OIL RESISTANT RUBBER • COMBINATION WELD AND RUBBER



● All Cameron Slip-Suspension Casing Heads are designed to be used with any one of the three types of casing seals listed above.

Whenever the physical properties of the casing are suitable for welding, the Type "M" Test-Weld Flange may be employed. This flange not only provides a means for testing the weld, but also provides a secondary plastic packing seal which is re-packable under pressure. The Type "M" Test Weld Flange is illustrated in cross-section at left.

● Whenever the physical properties of the casing make field welding impractical, the Cameron Type "W" oil-resistant rubber seal is recommended. This resilient seal ring, illustrated at right, bolts down on top of the slips by means of socket-head cap screws.

Some operators employ the Type "W" Seal in conjunction with a Type "WM" Testing Flange, which may also be welded to the casing and which provides a means for testing both the welded seal and the resilient seal.

Complete details are carried in your Composite Catalog, or descriptive literature will gladly be sent to interested operators on request.

CAMERON IRON WORKS, INC.

711 MILBY ST., HOUSTON, TEXAS

Export: 74 Trinity Place, New York, N. Y. California: The Howard Supply Co., Los Angeles. Rocky Mountain: Mountain Sales & Service, Casper, Wyoming. Oklahoma: 310 Thompson Bldg., Tulsa.

Scarcity of Light and Heavy Fuel Oils Accentuated by Lower Refinery Runs

Tightness of supply was evidenced again in statistics for the week ended February 3, with refinery runs off substantially and crude production down slightly. Increasing scarcity of light fuel oil was an outstanding factor, and residual fuel oil was taken from storage in spite of greater refinery output. Gasoline went to storage, however, in relatively large volume, although production of it was down somewhat from the previous week.

U. S. crude production averaged 4,723,000 barrels daily, a decrease of 4000 from the week before, although 323,000 a day or 7.3 percent more than the 4,400,000 barrels daily reported for the like week a year ago. Stocks of refinable crude totaled 221,310,000 barrels on January 27, the Bureau of Mines reported, having been drawn down at the rate of 45,000 barrels daily during the 7 days ended on that date. The new figure was within a million barrels of the 23-year low of two months ago. It was nearly 20,000,000 barrels less than the 240,251,000 barrels of crude in storage January 29 a year ago.

Crude runs to stills at U. S. refineries averaged 4,662,000 barrels per day in the week of February 3, down 94,000 from the previous week but 304,000 daily or 7 percent above runs in the corresponding week a year ago.

Production of gasoline, including natural blended at refineries, averaged 2,076,000 barrels daily, down 60,000 from the week before but 203,000 a day or 10.8 percent more than production in the like week a year ago. Stocks of finished and unfinished gasoline were increased during the week at the rate of 401,000 barrels daily, having been boosted to 91,034,000 barrels. That quantity was 9,430,000 barrels or 11.6 percent more than the 81,604,000 barrels reported for the corresponding date a year ago.

Gasoil and distillate fuel oil production of 651,000 barrels daily in the week ended February 3 was 40,000 a day less than in the previous week but 38,000 a day or 6.2 percent more than production in the like week last year. Stocks were reduced during the week at the rate of 183,000 barrels daily, having declined to 32,370,000 barrels. That amount was nearly 4,000,000 barrels or 11 percent less than the 36,333,000 barrels on hand at the corresponding date a year ago. Men who are closely watching the statistical position of light fuel oils lately have sounded warnings that special efforts to conserve supplies are necessary to prevent possible serious shortage before cold weather is over.

Residual fuel oil production averaged 1,340,000 barrels daily in the week ended February 3, an increase of 18,000 over the week before and 62,000 a day or 4.8 percent more than production in the corresponding week last year. Stocks of residual fuel were reduced at the rate of 95,000 barrels per day during the week, having dropped to 50,451,000 barrels, a new low for this year and within less than a million barrels of the low of last spring, which was the smallest inventory of recent times.

Ad Valorem Royalties Tax Defeated in Oklahoma

Oklahoma legislators defeated an attempt to impose an ad valorem tax on oil royalties and other minerals when the oil and gas committee of the House against a bill introduced by Representative James M. Bullard of Stephens County.

Stanley Catlett of Kerlyn Oil Company declared the assessing of oil royalty "would be an extremely complicated process," while J. D. Dubois of the Rock Island Oil & Refining Company pointed out that the task of keeping track of so many small royalty interests would cost the counties more than they would realize on the tax.

☆

J. A. BROWN, chief geologist for Kentucky Natural Gas Company at Owensboro, Kentucky, has joined Sohio Petroleum Company as district geologist for the Owensboro division.

☆

BYRON RIFE, former independent producer, San Antonio, now commanding officer of the Kankakee Ordnance Works and Elwood Ordnance Plant, Joliet, Illinois, has been promoted to a full colonel.

NORMAN M. SMITH, 47, production superintendent for the T. K. Simmons interests for 25 years, died in Tulsa January 31. He was a native of Holden, a graduate of the University of Arkansas and a veteran of World War I. Before joining the Simmons organization he was employed by the Mid-Continent Petroleum Company and Gulf Oil Corporation.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Crude Oil Prod. Week Ended	Runs to Stills Barrels Daily	Runs to Stills Week Ended	Crude Stocks Barrels	Crude Stocks Week Ended	Gasoline Stocks Barrels	Gasoline Stocks Week Ended	Gasoil and Distillate Stocks Barrels	Gasoil and Distillate Stocks Week Ended	Residual Fuel Oil Stocks Barrels	Residual Fuel Oil Stocks Week Ended
Highs:												
1941	4,337	11-22	4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	47,861	11-14	95,857	1- 3
1943	4,436	11-13	4,331	12- 4	245,752	5-29	94,159	3-20	47,187	11-27	72,881	1- 2
1944	[1]4,762	9-30	[1]4,798	12-30	240,992	1- 1	89,162	4- 1	48,863	10-28	64,644	10- 7
1945	4,733	1-20	4,756	1-27	221,628	1-20	91,034	2- 3	38,298	1- 6	9,252	1-27
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4- 8
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,382	4-12	90,914	7-12
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12- 5	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-13	232,191	1- 9	68,182	10-16	30,732	4- 3	57,596	12-25
1944	4,357	1- 1	4,228	2-12	[4]220,258	9- 9	76,302	1- 1	30,232	4-29	49,737	3-18
1945	4,678	1- 6	4,656	1- 6	220,331	1- 6	86,616	1- 6	32,370	2- 3	50,451	1-27

TRENDS OF 1944 AND 1945

Trends in Week Ended:	Crude Oil Production Daily	Crude Oil Runs to Stills Daily	Crude Oil Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gasoil and Distillate Production Weekly	Gasoil and Distillate Stocks Week End	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
1944:									
January 1	4,357	4,453	240,992	13,192	76,302	4,575	42,310	9,141	57,330
January 29	4,409	4,359	240,251	13,427	81,075	4,054	37,266	8,889	52,857
February 26	4,423	4,377	237,137	13,183	85,248	4,558	33,766	8,952	51,387
March 25	4,385	4,443	236,285	13,362	87,287	4,979	31,319	9,013	51,669
April 1	4,383	4,435	234,667	13,824	89,162	4,450	30,530	8,367	51,326
April 29	4,431	4,300	235,342	13,126	88,462	4,284	30,236	8,398	49,985
May 27	4,514	4,532	234,423	13,502	86,468	4,702	32,035	8,568	49,812
July 1	4,587	4,638	228,860	14,052	83,559	4,496	35,360	8,872	52,235
July 29	4,608	4,627	225,112	14,115	82,665	4,833	38,135	8,900	56,280
August 26	4,667	4,698	222,931	14,112	80,740	4,566	41,453	8,680	59,839
September 30	[1]4,762	4,775	222,393	14,494	78,028	4,622	45,329	9,292	64,226
October 28	4,740	4,658	223,235	14,117	79,058	4,772	48,705	8,985	64,382
December 2	4,712	4,693	221,591	14,853	80,427	4,082	45,832	8,981	61,727
December 9	4,704	4,552	[4]220,258	14,611	80,880	4,056	44,436	8,923	60,458
December 16	4,695	4,537	222,075	14,145	82,747	4,353	42,413	8,727	59,280
December 23	4,729	4,682	222,575	14,635	83,355	4,605	40,846	8,798	58,509
December 30	4,705	[1]4,798	222,998	15,342	86,614	4,257	39,495	9,156	57,430
1945:									
January 6	4,678	4,656	220,331	14,472	86,616	4,533	38,298	9,092	56,074
January 13	4,722	4,570	221,114	14,139	87,814	4,408	36,410	8,993	54,207
January 20	4,733	4,686	221,628	14,554	88,708	4,586	35,041	9,082	52,554
January 27	4,727	4,756	221,310	14,957	88,223	4,843	33,651	9,252	51,119
February 3, 1945	**4 723**	**4,662**	.....	**14,535**	**91,034**	**4,559**	**32,370**	**9,377**	**50,451**
February 5, 1944	4,400	4,358	[5]240,251	13,114	81,604	4,294	36,333	8,945	52,956
Change:									
In week	—4	—94	—318	—422	+2,811	—284	—1,281	+125	—668
In year	+323	+304	—18,941	+1,421	+9,430	+265	—3,963	+432	—2,505
In year	+7.3%	+7.0%	—7.9%	+10.8%	+11.6%	+6.2%	—10.9%	+4.8%	—4.7%

[1] All time peak. [2] Lowest between January, 1922 and July 1, 1944. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [4] Lowest since December, 1921. [5] Stocks, January 29, 1944.

Pipe Line Review

Contract Is Awarded for 55-Mile Winnie Field Line

J. R. Horrigan Construction Company, Houston, has been awarded a contract by Glenn H. McCarthy, Inc., Houston, to lay 55 miles of 2 and 3-inch liquid products line from the Winnie field cycling plant, now being built, to the Neches butane products plant. Work is to begin in April, with completion set for June.

Horrigan has also received a contract from McCarthy to lay 8½ miles of 4 and 6-inch and 3½ miles of 8-inch gathering line to the Neches plant and 28 miles of 10-inch natural gas line from the Winnie field to the West Beaumont-Port Arthur system.

Bayou System Pumps New High Average for Month

Shell Pipe Line Corporation reports that for the month of January the Bayou Pipe Line system pumped a new record daily average throughput of refined products into Baton Rouge and Port Allen, Louisiana, of 65,091 barrels. When pumping gasoline alone the 10-inch line averaged 67,921 barrels, while the 8-inch line into Port Neches, Texas, averaged 44,015 barrels. For the year 1944 the 10-inch line averaged 63,068 barrels despite several times when it could not be supplied to full capacity. The 8-inch line with full supply averaged 42,150 barrels for the year. The average handling loss for the year, including that in connected refiners and terminal tanks was .12 percent.

Cities Service Company Kansas Line Completed

Sharman and Allen, Houston contractors, last week finished laying 44 miles of 16-inch gas transmission line from Shidler to Caney, Kansas, for Cities Service Gas Company.

The line ties into Cities Service's main gas transmission system, which draws from the Hugoton gas pool.

Dow Awards Contract for 81-Mile Line to Freeport

Dow Chemical Company, Freeport, Texas, has awarded a contract to Sharman and Allen, Houston contractors, for the laying of 81 miles of 4-inch line from Humble Oil & Refining Company's cycling plant at Katy, Texas, to the Dow plant at Freeport.

The line will relieve tank cars in the delivery of butane-propane-ethane mixture, a Humble by-product, to the Freeport plant.

Tennessee Gas Abandons Plans for Texas Line

Unable to make firm contracts with producers of natural gas for the additional service it planned to initiate, the Tennessee Gas and Transmission Company withdrew, without prejudice, its application for authority to construct 65 miles of additional pipe line in Texas. A hearing on the application, scheduled by the Federal Power Commission for February 8, was cancelled.

The company proposed to link a number of Texas gas and oil fields to its Texas-West Virginia main line to provide an outlet for gas not now reaching a market, but in petitioning for withdrawal of its application advised the commission that it could not obtain firm contracts and therefore could not proceed with the application at this time.

6-Inch, 90-Mile Line from Colorado Pool Is Planned

Utah Oil Refining Company plans to lay 90 miles of 6-inch crude oil lines from the Rangely pool in Rio Blanco County, Colorado, to connect with its Wamsutter-Iles line at Craig, Moffat County, Colorado, which feeds into the trunk line between Fort Laramie and Salt Lake City. Construction will start in the spring and the job is expected to be completed by late July.

WPB Gives Top Priority To Ohio-Michigan Project

Immediate steps to prevent a recurrence next winter of the natural gas shortage in the Middle West which last month threatened to interrupt vital war production have been urged upon the Panhandle Eastern Pipe Line Company by WPB.

On the recommendation of Edward Falck, director of the Office of War Utilities, the WPB has granted top priority rating to a $9,000,000 project to increase deliveries of Oklahoma and Texas gas into the Ohio-Michigan area by 50,000,000 cubic feet daily.

Panhandle's application for construction authority will be reviewed by the Federal Power Commission at a hearing February 15 in Washington.

Prompt action on the application by the FPC was urged by the company's representation that WPB considers it imperative to have the new facilities in operation by November 1, to do which, it said, it will be necessary to have all material required under the order not later than February 20.

The OWU asked Panhandle Eastern last month to undertake the work as "absolutely essential" to prevent interruptions to war production next winter which it is feared would be more serious and more prolonged than the stoppages which have occurred so far. The company immediately submitted detailed plans for the project, and initiated steps to obtain the necessary authority from the Federal Power Commission.

The project involves increasing the capacity of one of the two lines operated by the company between the Hugoton gas field and the Ohio Fuel Gas Company from 500 to 600 pounds pressure by installing additional compressors and the construction of some 32 miles of 24-inch pipe on the eastern end of the line to permit delivery of the additional gas to the Ohio system near Muncie, Indiana, and Maumee, Ohio.

☆

LIEUTENANT FLOYD F. GRANT, 29, of Tulsa, former accountant for Shell Oil Company, was killed in action in Belgium, January 18. He was attached to an infantry unit of the Third Army.

Cut Bank to Great Falls Line Is Third Complete

A. B. Cobb & Company has completed 30 miles of its 90-mile, 5-inch oil pipe line, starting at the Cut Bank field end and extending to a loading rack at Conrad, Montana. The balance of the line is continuing under construction.

Terminus will be the Home Oil & Refining Company's refinery at Great Falls, Montana. Capacity of this refinery is rated at 2000 barrels per day.

Gas Line from U. S. Is Planned by Ontario Firm

Permission of U. S. authorities and the ability of Union Gas Company to raise the necessary funds are needed to realize a plan to pipe 5 billion cubic feet of natural gas a year from the United States into Western Ontario.

T. Weir, general manager of Union Gas, said City Gas Company of London, Ontario, and Windsor Gas Company plan to put gas back into 10,500 homes which have converted to other fuels since the war began.

The proposal includes construction of 70 miles of pipe line, including a portion under the Detroit River.

New Pipe Line Firm

An engineering firm known as Foremna-Richardson-Baird, has been organized with headquarters at Kansas City, Missouri, to specialize in engineering, design and construction of pipe lines and structures related to the natural gas and petroleum industry.

Members of the firm include Frank E. Richardson, manager of Pan American Pipe Line Company, Hugh W. Baird, special representative, National Tube Company, and H. M. McShane, secretary-treasurer, C. S. Foreman Company.

Offices of the new firm are maintained at 20 West 9th Street, Kansas City, Missouri.

Spal Report Available

The Interstate Commerce Commission, Bureau of Transport Economics and Statistics' report on "War-Built Pipe Lines and the Postwar Transportation of Petroleum" (THE OIL WEEKLY, February 5, 1945) is an attempt to throw light on how the recent expansion of petroleum pipe lines in the United States, during the war period, may affect the traffic of other transportation agencies after the emergency has passed.

The report, prepared by Sam G. Spal, associate economist, under the direction of Charles S. Morgan, chief carrier research analyst, may be obtained by writing The Interstate Commerce Commission, Washington, D. C.

Line Taken Up

Seven miles of Gulf Refining Company's 6-inch oil line is being taken up near the firm's Tree City, Texas, station. Sharman and Allen, Houston contractors, expect to complete the job by February 19.

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International Developments

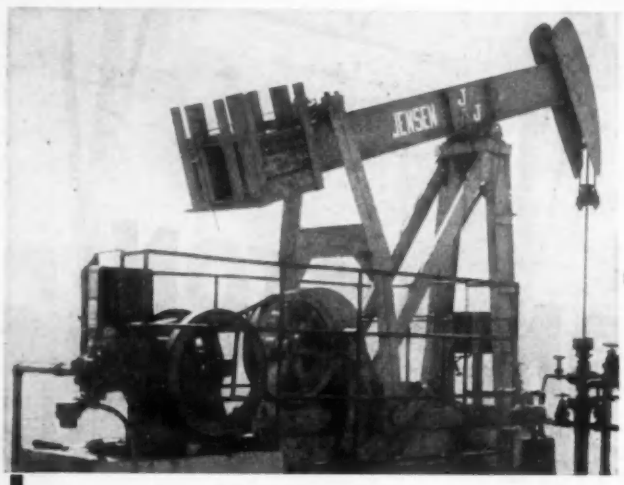
Apure Basin Test Drills 800 Feet of Hole in Week

More than 800 feet of hole was made in the last week of January at Socony-Vacuum Oil Company's San Vicente 1 wildcat, first test in the company's huge concession block covering most of the northern part of the Apure basin of Venezuela. Depth of the hole January 31 was 4359 feet. It was spudded in the last week of December.

The same company was testing two wells at completion depths below 6900 feet, on the same date, in its Guico field, extension of the important West Guara field in the Oficina area. A third Guico well was being perforated after testing at 7018 feet.

Floresanto Test Drilling

Floresanto 1, wildcat in western Bolivar, Columbia, was drilling and coring January 31, having made 1100 feet of hole during the month. Depth was reported to be 5400 feet. This well is 120 kilometers southwest of Covenas.



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Drilling Barges on Piles Being Used by Russians

In addition to directional drilling from shore locations, Russian engineers are reported to have developed a combination barge and pile design for drilling offshore wells in the Baku area, particularly in Ilyich Bay and on the west side of Artem Island, off the northeast tip of the Apsheron peninsula. According to information published in a Russian journal rigid marine drilling platforms have not been able to withstand the heavy seas produced by frequent Caspian storms. How the pile-anchored barge design works to better advantage is not explained; but apparently the barges are extremely large. They are settled onto piles that are set in holes drilled into rock at the sea bottom.

Russians Begin Recycling In Kama River Area Fields

The Molotov Oil Combine, in charge of all petroleum activities in the Tartar and Molotov republics, has begun recycling operations in two oil fields in the Kama River area of Russia, at Polazna and Chusovski. Air-gas mixtures are being injected at high pressures into deeper sands in the fields, maintaining reservoir pressures and in some wells, increasing production.

It is also reported that water flooding experiments are in progress in the important Krasnokamsk field, with good results achieved in the upper sands. This field has recently been extended to the west and north, across the Kama River in one direction and nearly merging with the Solikamsk field in the other. This would indicate that the producing area of the greater Krasnokamsk district now amounts to approximately 35 square miles.

Shell Interests Drilling Six Wells in Colombia

In the second week of January Shell interests had six drilling operations in progress in Colombia—all but one of them wildcat tests. Rigging up was virtually completed at the second San Martin location in the interior Llanos. Drilling at Dificil 4 in central Magdalena had progressed beyond 4750 feet, and No. 5 was ready to be spudded. In the San Angel tract, adjoining the Dificil concession on the north, a third test was reported at 3520 feet after two previous wildcat failures in the area.

Southeast of Dificil, in Shell's Doce concession, Brillante 2 was drilling below 4600 feet. In addition, well 27 had been put down to 2480 feet in the Casabe field, opposite Barranca Bermeja and the De Mares fields.

Wildcat Drilling Fast

San Vicente No. 1, Socony-Vacuum wildcat in the Apure basin, State of Barinas, Venezuela, was drilling below 3560 feet on January 24, only a month after being spudded. This performance is approximately three times the average drilling rate for isolated wildcat operations in the interior of Venezuela and Colombia.

U. S. Field Operations

Oklahoma

Garfield County Given Major Pool Opener

Garfield County gets major pool opener; Paul Valley pool extension reported; Amerada to test Viola lime in Cleveland County wildcat; Magnolia opens new oil pool near Lexington; pool opener looms for Payne County.

Garfield County: Cities Service Oil Company completed Mariner 1, NW NE NW 6-22n-3w, north of the old Garber pool, opening a major oil pool which may extend at least 2 miles north and probably will connect with the Garber field. Topping the Arbuckle lime at 5245 feet and with casing perforated in the zone between 5247-97 feet, the wildcat flowed at the rate of 2500 barrels of 41.5-gravity oil and 2 million feet of gas daily through ¾-inch choke under 500 pounds casing and 350 pounds tubing pressures. The strike revives interest along the Nemaha Ridge trend.

Six miles north of the discovery another pool opener loomed as Con-Tex Petroleum Company's Wolfe 1, NE SW SW, 34-24n-3w, on a seismograph high, showed gas in 2 minutes and filled 450 feet of oil on a drill stem test of Wilcox sand from 4833-40 feet. Pipe has been set and the well will be drilled deeper before production test is made.

Cleveland County: Southeast of Lexington, Magnolia Petroleum Company was in the final testing stage at Anneler 1, CSW NE 26-6n-1w, and had staked Hisel 1, C SE SW 23-6n-1w, northwest of the Anneler which is a new discovery in the Bartlesville zone. The well flowed 70 barrels of oil in 16 hours while running tubing and probably will be put on pump. Production is from 6075-83 feet with casing perforated. Seven miles east of Lexington, Amerada Petroleum Corporation's Carpenter 1, SW NE NW 17-6n-1e, was waiting on cement at 6618 feet and preparing to test a good oil show in the Viola lime at 6270 feet. The well was drilled to 6756 feet, and electrolog showed kicks in the Viola and in two basal Pennsylvanian sands.

Oklahoma County: Gulf Oil Corporation was still testing Beck 1, CSW SW 15-14n-2w, wildcat east of the Northeast Edmond pool, which was reported making about a million cubic feet of gas from Hunton lime through perforations at 5760-5804 feet.

Payne County: Hanlon-Buchanan, Inc., appears to have a pool opener at Heiring 1, SE SE SE 18-19n-2e, on the edge of Stillwater, which some weeks ago reported a showing in the Checkerboard lime. Drilled to the Misener sand where 7 feet of solid, saturated pay was cored from 3497-3504 feet, drill stem test recovered gas in 8 minutes with 3600 feet of fluid in the hole. When the tool was pulled the well started to flow. Casing was set for production test. Good shows were also logged in the Bartlesville sand and Oswego lime.

West Edmond: Two producers each were reported for the Oklahoma and Logan County sectors of the pool. Magnolia's Halloway 2, CNE NE 21-13n-4w, flowed 115 barrels of oil an hour through perforations from Hunton lime at 6821-80 feet; Phillips Petroleum Company's Lenhart 1-B, CSE SE 30-15n-4w, showed for 160 barrels of oil on a 4-hour gauge through open tubing on selective perforations between 6898-6907 feet; Stanolind Oil & Gas Company had potential of 240 barrels of oil in 3 hours at Crookham 3, CNW NW 28-14n-4w, through 1-inch choke with the well drilled to 6817 feet and pipe set 3 feet off bottom; Phillips' Lenhart 4-B, CNE SW 30-15n-4w, tested 680 barrels of oil in 4 hours through open tubing.

Major County: H. L. Hunt of Dallas, staked Kragh 1, NE SE SW 32-22n-14w, about 12 miles northwest of Fairview, which is projected to 10,000 feet and will be a test for Wilcox sand possibilities in the Anadarko Basin.

Location is on a surface structure where a well was drilled to 7450 feet some years ago, quitting in the Mississippian measure.

Garvin County: The Texas Company extended the Pauls Valley pool ½-mile north with the completion of Trahern 1, SE NW NW 32-4n-1e, flowing at the rate of 2500 barrels a day from basal Pennsylvanian sands. Drilled to 4702 feet, the pipe was perforated between 3988-4011 and 4098-4108 feet.

Kansas

Barton County Discovery Rated at 250 Barrels

Ellis County reports two new pools, new pay in established area; Barton County discovery rated at 250 barrels a day; northwestern Kansas wildcats testing good oil shows.

Barton County: A better-than-average oil strike was reported north of the Boyd pool when Raymond Grear's Carroll 1, SW NE SW 21-17s-14w, was reported good for 250 barrels a day on pump although no state potential had been assigned the discovery. It is producing from Arbuckle lime at 3356-70 feet and is along the southwest trend of the Kansas Uplift.

Ellis County: Sunray Oil Corporation, which has been unusually successful in Kansas during the past 12 months, was giving the county another pool opener at Befort 1, NE NE SW 11-14s-20w, southeast of the Pleasant pool. At 3853-76 feet in Arbuckle lime the well flowed about 50 barrels a day and operators were preparing to acidize. In the Pleasant pool, Sunray completed Pfeiffer 1, SW NE SE 214s-20w, establishing a new producing horizon in the Arbuckle for the pool. The well, after acidizing

Wells Completed in the United States in Week Ended February 10, 1945

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	Cumulative: This Year	Last Year
Alabama	....	....	....	....	....	....	....	....	....	....	....	1	3	2
Arizona	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Arkansas	....	....	....	1	1	....	....	....	2	2	3	2	17	16
California	27	....	....	....	27	....	....	....	5	5	32	29	229	181
Colorado	....	....	....	....	....	....	....	....	....	....	....	....	5	3
Florida	....	....	....	....	....	....	....	....	....	....	....	....	1	....
Georgia	....	....	....	....	....	....	....	....	....	....	....	....	1	1
Illinois	15	....	....	12	27	9	1	....	6	7	43	37	241	164
Indiana	1	....	....	2	3	1	1	....	1	2	6	6	33	39
Iowa	....	....	....	....	....	....	....	....	....	....	....	....	1	2
Kansas	14	5	....	4	23	....	1	....	9	10	33	25	160	216
Kentucky	2	....	....	1	3	....	1	....	1	2	5	9	63	71
Louisiana	16	1	....	4	21	....	2	....	....	2	23	17	112	58
North Louisiana	3	1	....	....	4	....	....	....	....	....	4	8	43	15
South Louisiana	13	....	....	4	17	....	2	....	....	2	19	9	69	43
Michigan	....	....	....	....	....	....	....	....	....	....	....	14	76	66
Mississippi	3	....	....	1	4	....	2	....	1	3	7	6	42	8
Missouri	....	....	....	....	....	....	....	....	....	....	....	....	6	3
Montana	3	1	....	1	5	....	....	....	....	....	5	5	18	30
Nebraska	....	....	....	....	....	....	....	....	....	....	....	....	....	4
New Mexico	10	....	....	1	11	....	....	....	....	....	11	13	62	42
New York	15	....	10	....	25	....	....	....	....	....	25	25	87	122
Ohio	3	1	....	1	5	....	....	....	....	....	5	4	69	93
Oklahoma	26	11	3	6	46	2	1	....	6	7	55	40	257	161
Pennsylvania	27	4	15	....	46	....	....	....	....	....	46	48	246	272
Tennessee	....	....	....	....	....	....	....	....	....	....	....	....	....	3
Texas	36	12	....	10	58	1	6	3	20	29	88	117	714	527
E.Tex.Bor. Co.'s	....	....	....	....	....	....	....	....	....	....	....	....	2	1
E. Texas Field	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Rest of E. Texas	3	1	....	....	4	....	....	....	1	1	5	4	27	30
North Texas	....	....	....	....	....	....	1	....	3	4	4	41	177	111
W. Central Tex.	2	2	....	5	9	....	1	....	1	2	11	4	34	40
West Texas	....	....	....	....	....	1	1	....	6	7	8	31	166	137
Tex. Panhandle	10	6	....	....	16	....	....	....	....	....	16	11	74	18
G. Coast, Upper	5	1	....	2	8	....	1	1	3	5	13	11	70	48
G. Coast, Lower	9	2	....	2	13	....	2	2	4	8	21	6	110	95
Southwest Texas	7	....	....	1	8	....	....	....	2	2	10	8	49	40
S. Central Texas	....	....	....	....	....	....	....	....	....	....	....	1	5	6
West Virginia	6	....	....	5	11	....	....	....	....	....	11	13	71	108
Wyoming	1	....	....	....	1	....	2	....	1	3	4	1	13	16
Total U. S.	205	35	28	49	317	13	17	3	52	72	402	412	2,527	2,209

* Includes distillate wells. † Includes salt water disposal wells.

with 500 gallons, was rated at 25 barrels a day from 3883-85 feet. Pleasant pool also produces from the Sooy and Reagan sands.

A mile northwest of the Catherine pool Max Cohen's Madden 1, NEC NE 4-13s-17w, a pool opener, established a physical potential of 106 barrels of oil per day after acidizing with 1000 gallons from Arbuckle lime at 3613-18 feet. On the Lansing and Arbuckle zones the well was normal with the Catherine pool structure and development may connect the areas.

Trego County: Harber and Lee Greenburg set production string at Cotton 1, SW SW NE 15-12s-21w, on top of the Arbuckle lime at 3958 feet, to test a good show of oil logged in cores taken to 3962 feet. On the Arbuckle the wildcat checks normal with producing wells in the Ogallah pool to the north.

Graham County: A show of heavy oil was reported in Iron Drilling Company's Everest 1, SE SE SE 32-8s-21w, which is at 3760 feet. Shows are from Arbuckle lime with casing perforated at 3745-56 feet and 3752-55 feet. While testing, the hole had 125 feet of oil in 18 hours and after acidizing with 500 gallons swabbed about 5 barrels of oil in 24 hours.

Missouri

Two interesting Missouri wildcats are reported drilling below 2900 feet. They are U. S. Bureau of Mines' Oliver 1, 29-22n-11e, in New Madrid County, deep test projected to 5000 feet, and H. M. Marr et al's Barnett 1, 3-25n-11e, Stoddard County. No stratigraphic information is being released on these holes at the present time.

In Cass County, Wilson et al's Kincaid 1, SW SE SE 8-45n-33w, was drilling below 479 feet, and in Platte County, northwest of Parkville, Fell & Reid's Klam 1, SE SE SE 19-51n-33w, was drilling below 200 feet following delays caused by bad weather and rig repairs.

Nebraska

Interest in northwestern Nebraska has been revived with the report that Fuerst Oil & Development Company's Dorsch 1, NW NW SW 6-20s-54w, wildcat southeast of Gering in Scotts Bluff County, logged a good gas show between 3800-4000 feet while being reamed down. The Dakota sand was topped at 4252 feet. The wildcat was drilled to 2752 feet in 1943 with small cable tool rig and was later carried down to present total depth of 4252 feet with a light rotary unit. After being shut down for several months, Leo Wentworth, drilling contractor of Wichita, Kansas, was given the contract to ream the hole and carry it deeper and he reported the gas shows in drilling mud during reaming operations.

New Mexico

Opening of Clear Fork Lime Field in Prospect

The opening of a Clear Fork lime field on the east edge of Lea County and near the northwest corner of Andrews County, Texas, was in prospect after Humble Oil & Refining Company's Keinath-Federal 1, c se nw 8-21s-38e, recovered 400 feet of gas-cut mud and 180 feet of oil-cut mud in using drill stem tester at 7300-7553 feet, having plugged back from Granite at 9954 feet.

Bottom hole pressure was calculated at 3030 pounds during test, then increased to 4020 pounds within 15 minutes after closing tools. Pipe will be set to complete through perforations. This wildcat entered the Glorietta at 5635 feet and Tubb (Clear Fork) at 6660 feet with elevation 3582 feet. The oil showing is from the same zone that has accounted for a flush producer at 6375-6430 feet in the Penrose deep area situated 8¼ miles south by west.

Gulf Oil Corporation's Gutman 1, north offset to its discovery in the Penrose deep field, entered the Tubb at 6070 feet with elevation of 3356 feet, being 8 feet high, and was coring at 6575 feet to explore the section before running pipe for completion. Effective oil saturation was evident in cores between 6435 and 6468 feet.

Gulf Oil Corporation's Andrews State 1, 1⅝ miles southeast of its discovery, entered the Tubb zone at 6150 feet, 33 feet low and had not reached the pay in coring to 6450 feet.

Deep Prospects: Atlantic Refining Company's Stevens 1, 14 miles southeast of the Cap Rock field, was awaiting plugging orders at 8245 feet, having entered dry Glorietta at 5960 feet and Abo at 7765 feet. Ohio Oil Company's Jones 1, 3¼ miles southeast of the Hobbs field and 10 miles north of the Keinath prospect, was awaiting orders after testing dry in dolomite at 7618 feet.

Phillips Petroleum Company's State Lea-Mex-4, north of the east portion of the Maljamar field, is credited with having logged a dry Mississippian section in drilling lime and shale at 9590 feet. No markers have been released below the San Andres. Skelly Oil Company's Steeler 2, first lower Permian test for the Skelly field, recovered 90 feet of gas-cut mud when tester was used at 5462-5520 feet and was drilling at 5870 feet.

The Texas Company's State 1-A-J, ½ mile west of the Turner sector of the South Lovington district, recorded structural dip to indicate that the trend of production in this direction has about run its course and was coring below 5100 feet in broken saturation. The upper zone of saturation was not present. Twelve rigs are active in this area.

Kirby Creek Area Has Promising Well in Embar

At Kirby Creek, Hot Springs County, Wyoming, Pacific Western Oil Corporation appears to have a new well in the recently discovered Embar formation that will produce more than the discovery well. Pacific Western's second test to deeper production, Kyne 1, SE SW NW 22-43n-92w, swabbed at the rate of 10 barrels of oil per hour from casing perforations at 3344-3440 feet opposite the Embar, after acidizing with 1000 gallons.

This well is reported to be over 50 feet higher structurally than the discovery, which has been completed on pump for 20 barrels per day.

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C. A. STOLDT, Oklahoma City, was elected president of the Oklahoma Society of Professional Engineers, succeeding C. S. Larkey, Tulsa. Other officers chosen include T. P. Clonts, Muskogee, and L. L. Dresser, Tulsa, first vice president and treasurer, respectively.

West Texas

Southwestern Andrews Is Given Deep Oil Area

Southwestern Andrews gains deep oil area; drill stem test attempted by Lubbock County wildcat; Crane County test logs stain in Upper Holt; Ector County well due for drill stem test after passing through Devonian.

Andrews County: The southwestern part of the county gained a deep oil area when Shell Oil Company and The Texas Company's Ratliff-Bedford 1, C NW NE PSL 4, Block 73, 8½ miles west of the West Andrews field, nearest production, flowed 36-gravity oil during 2 drill stem tests and logged more effective pay in coring to 7880 feet, where another test was pending. This wildcat yielded sweet gas at a rate of 885,000 cubic feet daily and flowed oil when tester was used at 7755-7844 feet.

The drill pipe yielded 7300 feet of pipe line oil and 300 feet of slightly brackish water.

More pay was logged in coring to 7862 feet, where a drill stem test with packer at 7845 feet returned sweet gas to surface in 20 minutes, and the well flowed steady while pulling drill pipe. Ratliff-Bedford 1 is 2½ miles northwest of an 11,322-foot granite failure, and substantially higher structurally, having logged top of the San Andres at 4420 feet and Glorietta (San Angelo) at 5540 feet with elevation of 3204 feet. The producing zone has not been identified, but could be Basal Permian, Mississippian or Devonian. It probably will be drilled to Ellenburger before attempting completion.

Sun Oil Company's Martin 1, C SE SE PSL 17, Block A-41, 2¼ miles northwest of the West Andrews field, recovered 120 feet of gas-cut mud with trace of oil when tester was used at 6380-6425 feet in Clear Fork, topped at 5590 feet with elevation of 3314 feet.

Magnolia Petroleum Company's Martin 1, 6½ miles north by east and 724 feet low on the top of the Clear Fork, was drilling dry lime at 8620 feet, having recovered 200 feet of gas-cut mud and 30 feet of oil-cut mud when tester was used at 7349-95 feet.

Stanolind Oil & Gas Company's University 1-D, a failure in Ellenburger at 10,057-10,118 feet, and also dry in the Silurian at 8960-9000 feet, will perforate opposite Devonian saturation at 8037-8330 feet.

Lubbock County: Magnolia Petroleum Company's Johnson 1, 5¾ miles northeast of the Stennett 4700-foot Clear Fork pool, entered the Ellenburger at 10,066 feet and was attempting a drill stem test at 10,118 feet, although no shows were reported. This wildcat will be plugged back after establishing the water level to test broken pay in the Wichita-Albany, topped at 6000 feet with elevation of 3166 feet.

Crane County: Sun Oil Company's Roberdeau 1, 1¾ miles northwest of the 3200-foot Clear Fork zone in the Crossett area, logged oil stain and porosity at 2915-30 feet in the Upper Holt, but proved dry on drill stem test, and was drilling at 3110 feet. Gulf Oil Corporation's Harris 1-A-E, C E¼ of W¼ H&TC Ry. 7, Block 6, and ¾-mile southwest of a failure in Ellenburger at 5305-5505 feet, tested sulphur water in

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the Simpson at 5130-75 feet, and was coring dolomite at 5215 feet.

Mabee Field: Texas Pacific Coal & Oil Company and Seaboard Oil Company's Midland 2-A, ¾-mile west of production and about flat structurally, was nearing the water table in drilling dry lime 4790 feet without shows. Porosity rather than structural position is a more decisive factor in this area.

Howard County: Continental Oil Company and Group One Oil Corporation's Settles 1-D-133, which indicated oil production in the Pennsylvanian lime at 8924-35 feet, encountered additional oil and gas at 9110-16 feet that was not tested, and was drilling lime and black shale at 9145 feet.

Ector County: The Texas Company's T. P. Land Trust-Frazer 1-B, 3¾ miles east by south of the Wheeler-Ellenburger field and higher structurally, appeared to have passed through the Devonian chert at 8090-8232 feet, and was due to drill stem test at 8245 feet as some evidence of porosity was noted. The Texas Company and Phillips Petroleum Company's Cowden 1, offsetting San Andres production in the Ector County sector of the Embar field, entered the Glorietta at 5250 feet and Wolfcamp at 7690 feet with elevation of 3226 feet, and was showing nominal oil stain and porosity in coring Pre-Permian beds at 8717 feet.

Fullerton-Union: Chalmette Petroleum Corporation's Lake Shore Corporation 1, a mile northwest of the most northeasterly producer in the Fullerton field, entered the San Andres at 4330 feet with elevation of 3356 feet, being 56 feet high, and was drilling at 5800 feet. Magnolia Petroleum Company's Ralph 1-A, projected Ellenburger test for the west side of the Fullerton field, was drilling dry lime at 9910 feet. Frontier Fuel Oil Corporation et al's University 1-A, 2⅞ miles southeast of Fullerton-Devonian production and 284 feet low on the Tubb (Fullerton) sand topped at 6785 feet, was drilling at 7270 feet without shows.

In the Union field, Union Oil Company of California's Biles 9, first Pre-Permian test, yielded an abundance of sulphur water in the Devonian at 8770-8803 feet, and will plug back for completion in the 7400-foot Clear Fork.

Winkler County: Continental Oil Company's Walton 1-D, Ordovician failure on the west side of the Keystone-Ellenburger field that established the presence of a thrust fault, or overturned fold in drilling short section of Ellenburger then going back into Simpson to 10,756 feet, failed to indicate production or water from Holt perforations at 4890-4970 feet, and will test 100 feet higher.

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North Texas

Clay County Offset to Try For Completion in Bend

Clay County test enters Bend at 5876 feet; Wilbarger County test to reperforate after showing for small well.

Clay County: Anderson-Prichard Oil Corporation's Wood 1-B, east offset to its recently completed discovery in Bend conglomerate at 5935-50 feet, entered the Bend at 5876 feet, being 6 feet high, and was drilling shale at 6230 feet for geological information before setting pipe to try for completion in oil-saturated conglomerate at 5985-92 feet.

A drill-stem test of the latter zone yielded gas to surface in 10 minutes and the recovery consisted of 216 feet of oil and 30 feet of oil-cut mud with bottom-hole pressure calculated at 2675 pounds. Second conglomerate saturation at 6059-73 feet tested 150 feet of gas-cut mud with brackish taste and 2100 pounds bottom-hole pressure. This area is on the southwest side of the Petrolia uplift.

Barnsdall Oil Company's Stine 1, southwest offset to production in the Spring sector of the Ringgold district, was eliminated as a Bend producer in testing dry at 5550-5624 feet.

The Texas Company's Stine 3 was drilling black shale at 5650 feet after testing 45 feet of oil-cut mud at 5596-5610 feet and 210 feet of oil- and gas-cut mud at 5554-5610 feet.

Grayson County: The Pure Oil Company's Quintin Little 1-A, Gordonville prospect, was fishing for stuck drill pipe while bottomed at 9532 feet. Top of Ellenburger was tentatively called at 9479 feet. Broken oil saturation in the Simpson induced the company to move in a string of 5½-inch pipe to make a production test.

Wilbarger County: Big Six Oil Company's Schlaffke-Morris 1-A, northwest edge of the Harrold multi-pay field, was due to reperforate and reacidize after showing for a small flowing well from Mississippi perforations at 4830-48 feet.

Odell Field: Fain & McGaha's Carmichael 1, NE NE SE H&TC Ry. 3, Block 10 and a mile west of production, entered the Palo Pinto at 4756 feet, 63 feet low, and resumed drilling after

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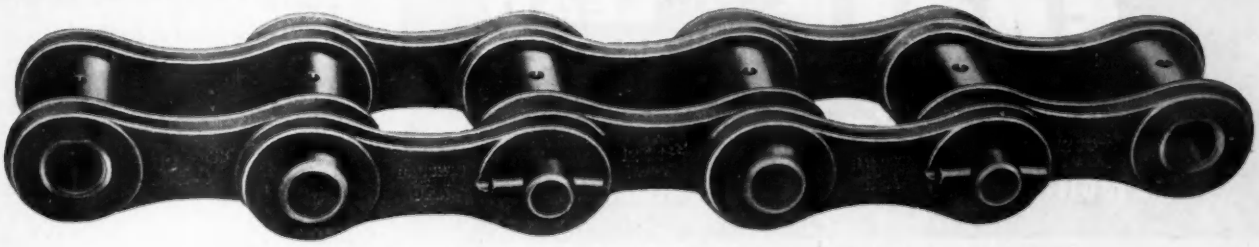

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proving dry when tester was used at 4816-46 feet. The Texas Company's Evans 1, southeast edge of production and a failure in the Palo Pinto at 4870 feet, will not be deepened to the Strawn owing to its low structural position.

Throckmorton County: James Stewart & Company, Inc.'s Tharp 1, SEc TE&L Co. Section 3007 and 2 miles northwest of the Ewalt 2-well pool, pumped 171 barrels oil initial after using acid in Bend perforations at 4260-70 feet, having plugged back from Mississippian at 4822-85 feet.

Cooke County: The Texas Company's Gainesville National Bank 2, 1100 feet northeast of its recent Northwest Walnut Bend flowing discovery in Ellenburger at 5409-63 feet, entered dry Simpson at 5298 feet and was drilling at 5315 feet.

East Texas

Freestone Prospect Tests Water in Travis Peak

Prospective gas-distillate strike in Travis Peak tests salt water; Hopkins County test fails to indicate production in Bacon; Wood County test plugs back to perforate.

Freestone County: The Texas Company's McKnight 1, prospective gas-distillate strike in the Travis Peak for the Fairfield area, eliminated the deepest of 3 porous zones in testing salt water from perforations at 8379-83 feet and 8353-60 feet, having plugged back from 8903 feet. Perforations are to be made near the 8335-foot level as a final test of the lower zone, then will test more effective porosity at 8286-96 and 8233-46 feet.

Henderson County: Gulf Oil Corporation's Frizzell 1, a mile east of Baxter, has apparently located an unusually low sector in entering the massive anhydrite at 10,815 feet with elevation of 459 feet, and was drilling anhydrite at 11,225 feet. The Texas Company's Morse 1, 1½ miles southwest of Chandler, recovered stuck drill pipe, and was drilling limey-shale at 10,110 feet in basal Rodessa. Humble Oil & Refining Company's Jones-Huddleston 1, Eustace prospect, resumed drilling after testing salt water in the Paluxy at 5994-6008 feet.

Hopkins County: Sun Oil Company's Turner 1, 8000 feet northeast of the Pickton discovery well, was abandoned in the Rodessa at 8189 feet, having failed to indicate production in the Bacon zone. Rig has been moved to drill the company's J. M. Burns 1, northwest corner of 140.7-acre lease, Antonio Lazarine Survey, being a northeast offset to Humble Oil & Refining Company's W. A. Nichols 1, which is showing for a producer. The latter recovered 9 feet of porous oil-stained lime in core at 7892-7912 feet, and was to continue to 7940 feet before running pipe.

Hunt Oil Company's Spigner 1, offset to the discovery, flowed 389 barrels of 50.8-gravity oil, gas-oil ratio 1281/1, natural from Bacon perforations at 7892-7903 feet, having entered the Bacon at 7873 feet with elevation of 482 feet.

Smackover Tests: Humble's Searcy 1, Titus County wildcat and second deep test by the company on its Mount Pleasant geophysical prospect, logged additional water in drilling to 12,010 feet, being 220 feet in the section. The well flowed salt water with sulphur odor through tester at 11,810-11,827 feet. In Hunt County, Ohio Oil Company's Popper 1, O. M. Roberts Survey and 2½ miles southeast of Cash, entered the Georgetown at 3460 feet and Glen Rose at 4600 feet. It was changing to core barrel at 4980 feet. H. C. Cockburn et al's Fee-Gilliam 1, Falls County prospect and a mile northwest of Stranger, resumed coring at 6901 feet

Wood County: Delta Drilling Company et al's Mosley 1, Seth W. Mitchell Survey and ½ mile north by east of the Oak Grove dormant low-gravity oil discovery, was awaiting perforating crew after cementing 5½-inch casing at 5551 feet after plugging back from 6015 feet.

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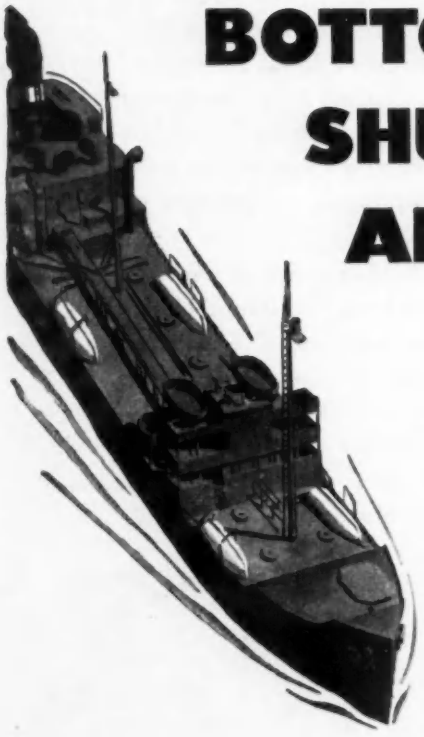

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South Central Texas

Probable Depth Record For Open Hole Is Set

Quintana Petroleum Corporation's South Texas Syndicate D-3, wildcat in LaSalle County, has probably established a record for the amount of open hole carried in drilling to 14,615 feet, and if not halted by mechanical difficulties, may set a new depth record for Texas, now held by Phillips Petroleum Company's Price 1, in Pecos County, at 15,279 feet.

There have been several instances in which as much as 9000 to 10,000 feet of open hole has been drilled without setting intermediate protection casing, and one case of nearly 11,000 feet, but this well now has 13,115 feet of hole below the 1500 feet of 9⅝-inch surface casing, believed to be a world record.

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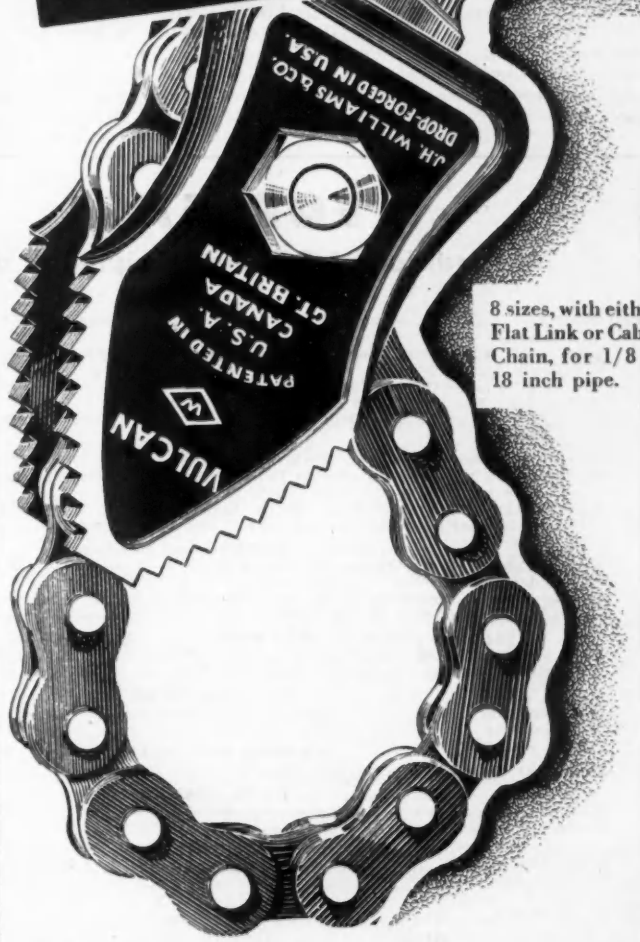

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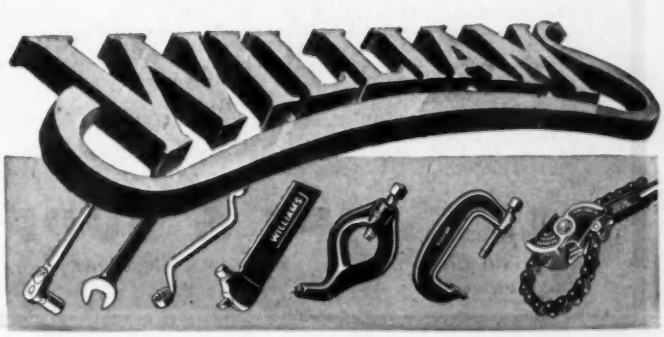

Another interesting feature is the drilling of 2200 feet of Georgetown section with the well still in Georgetown. This is an abnormal section for most wells in this area, since normally operators would expect around 200 feet between the Del Rio and the Edwards, or 400 feet at the most. The thick section in this well corresponds to the 2000 to 3000-foot section found in wells on the San Marcos Arch in Mexico and probably proves its extension this far into Texas. As in the case of many deep wells, this test was not originally intended to be carried to any such depth, having been drilled to test the Wilcox at around 6000 feet. It is now carrying 8¾-inch hole and reached its present depth through normal drilling practices with no special mud program, using rock bits all the way.

Southwest Texas

Oil Showing Obtained In Duval County Test

Showing of oil on test in Duval County wildcat.

Duval County: M. M. Miller & Sons' George Herberger 1, wildcat 9 miles south of Benavides, is waiting on cement after a squeeze job which followed a drill stem test with casing perforated at 5145-48 feet. With tool open 20 minutes, using ¼-inch chokes, pressure built up to 1500 pounds, with recovery of 150 feet of oil and 120 feet of salt water. It likely will test again at about the same point after cement has set. Total depth of the well is 5960 feet.

Starr County: W. D. Kennard has made location for his Anna M. Kelsey 2, as a southwest edge test in the Ross field. It will be located 933 feet southwest of Walter Goldston's Kelsey C-5, and 970 feet west of his own well No. 1.

Continental Oil Company is preparing to drill T. B. Slick A-117, new test more than 2000 feet from nearest production in the Rincon field, located in CCSD&RGNGRR Survey 529.

Webb County: Phillips Petroleum Company's Bruni B-1, wildcat 10 miles southwest of Aguilares, has been abandoned at 5310 feet with no shows reported.

Lower Texas Coast

Bee, Brooks Wildcats Record Oil Showings

New showings of oil noted in wild cats in Bee and Brooks counties; Live Oak County test attempting to complete from Wilcox sand.

Bee County: Fred W. Shield's J. L. Courtney 1, wildcat in the Tulsita Townsite, is drilling toward the Luling sand after having already shown oil on a drill stem test in the Slick sand. The test was made at 7042-48 feet, using ¼-inch chokes at top and bottom, and recovered 1300 feet of clean oil in 15 minutes, with 30 feet of oily mud and 30 feet of fresh water.

Southwest of Beeville, in the Bee County School Land Survey, W. Earl Rowe's Nona Berry Davis 2 was preparing to complete at 3780-86 feet where casing was perforated for a production test. It was cleaning through a ⅛-inch choke, making gas and wash water with pressure of 1500 pounds on tubing.

Brooks County: Humble Oil & Refining Company's Dan Sullivan 1, southeast of Falfurrias, was reaming to core after making another drill stem test that recovered gas and distillate. The latest reported test was at 8170-82 feet with recovery 10 feet of distillate and 60 feet of gas-cut mud. It cored to 8188 feet before reaming down.

The company's Sullivan B-1, wildcat southeast of Falfurrias, was fishing for stuck drill stem at 7011 feet. A drill stem test was made at 6786-97 feet, recovering 5 stands and a single of fluid in 21½ minutes, but no details on recovery have been reported by operators.

The Texas Company's Mary Lasater 2, wildcat 4½ miles southeast of Falfurrias, has been abandoned at 8300 feet after failure to show for a producer.

Live Oak County: Continental Oil Company's Kittie West Schreiner, 5 miles south of the town of Kittie, in J. Poitevent Survey 3, was testing after recovering oil and salt water on production test. With casing perforated at 6810-20 feet, it flowed 11 barrels of 43.1-gravity oil in 16 hours plus 45 percent salt water, through a 10/64-inch choke with tubing pressure 2100 pounds and ratio 100,000 to 1. Depth is 7614 feet with casing on bottom.

☆

JOE A. HALE, assistant to the division manager of the Oklahoma-Kansas-Illinois producing divisions of The Texas Company, has been named assistant supervisor of industrial relations of the company at Houston effective February 15. Hale joined the company in 1927. He is succeeded in Tulsa by W. B. Cooper.

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Upper Texas Coast

New Oil Field Probable In San Jacinto County

New San Jacinto County oil field probable; new producing pay apparent at Old Ocean; outpost tested at Satsuma; Brazos County well sets depth record for district.

San Jacinto County: A new Wilcox oil field has been virtually assured by tests of sand cored in Navarro Oil Company's Foster Lumber Company 1, southwest of Cold Spring and southeast of the town of Evergreen in the George Taylor Survey. A string of 5½-inch casing has been landed at total depth of 7960 feet for production tests. First gas sand in the Wilcox was topped at 7881 feet, with oil contact at 7898 feet, the well coring at 7907 feet before making the first drill stem test, showing 360 feet of pipe line oil and 180 feet of oil-cut mud. More sand was cored to 7912 feet, and a test at 7905-12 feet showed 450 feet of oil and 210 feet of oil-cut mud. After coring to 7935 feet, recovering sand all the way, a test was made at 7928-35 feet which showed 90 feet of 36.5-gravity oil and 450 feet of salt water. It then drilled to total depth and set casing on bottom. Plans are to make a squeeze job to shut off the bottom-hole water sand, and then perforate below 7900 feet for the first production test.

Harris County: Tide Water Associated Oil Company's T. W. Cobb 1, outpost 2100 feet west of production in the Satsuma field, has drilled cement plugs and is preparing to perforate casing for a production test. Total depth of this well was 7805 feet with the 5½-inch casing cemented at 7103 feet.

Humble Oil & Refining Company's Hutcheson 9, deep test in the Clear Lake Field, has reached 9824 feet, where it is conditioning mud before drilling.

Montgomery County: Pan American Production Company's L. E. Posey 1, in the Pinehurst area in the southern part of the county, is landing a string of 7-inch casing near total depth of 11,227 feet, after which it will drill to the contract depth of 12,000 feet before coming back for a test of the sand just below 11,000 feet. This well has been delayed more than a month by a fishing job.

Matagorda County: Skelly Oil Company, Tide Water Associated and Stanolind Oil & Gas Company's Hardy & Horn 1, interesting wildcat east of Bay City, was drilling at 10,514 feet in hard shale after drilling out of the 7-inch protection casing at 10,461 feet.

Brazos County: Phillips Petroleum Company's Fannie Schoeps 3, in the Millican area is drilling below 14,801 feet, the deepest well yet drilled in the Texas Upper Gulf Coast district. The operators have not released details, but at present depth it should be well into the Gulf Cretaceous series. There have been reports the company may move in a heavier rig capable of drilling this test to around 16,000 feet.

Brazoria County: Magnolia & Abercrombie's Bernard River Land Development Company C-1, in the Old Ocean Field, has been completed through perforations at 10,800-820 feet in what may be a new producing horizon. It flowed 292.3 barrels of 48.2 gravity oil daily through a ¼-inch choke with tubing pressure 3600 pounds. Top of the sand section had been reported at 10,655 feet. This well had been originally drilled to 10,943 feet and completed in an upper sand at 9680 feet in 1941, as had many of the earlier wells in the field, and has recently reworked for the lower completion. Gas-oil ratio was 34,962-1.

Colorado County: Pan American Production Company has made location for its next test in the new West Orange Hill field opened by its R. L. Williams 1, going 2448 feet northeast of the discovery well to drill the Schindler 1. The discovery itself has not yet been gauged, awaiting completion of tanks and separators before trying to make any kind of estimate of the volume of gas and condensate coming from perforations at 8368-90 feet.

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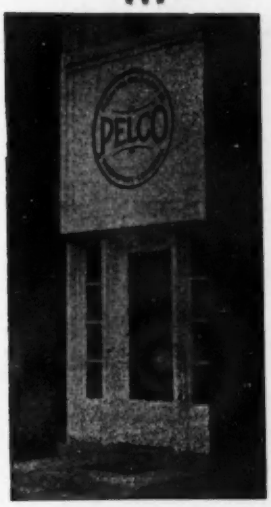

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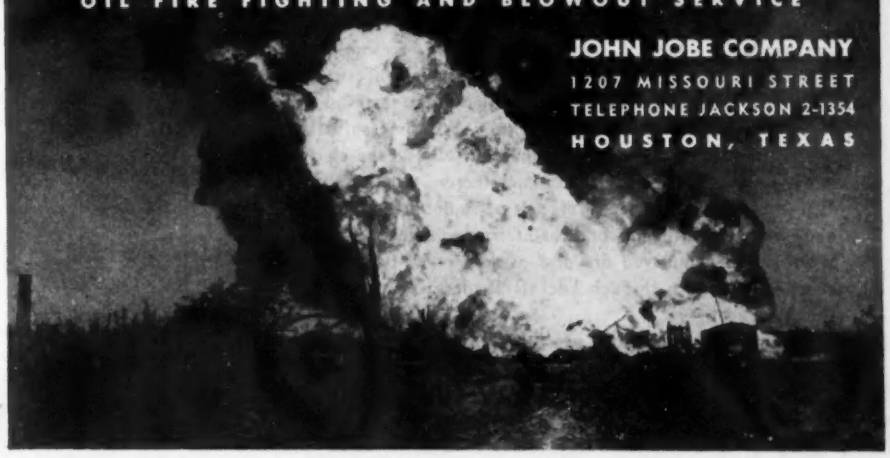

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South Louisiana

New Sand Is Opened in North Cankton Field

New sand opened in the North Cankton field, St. Landry Parish; volume of new locations (23 in a week) indicates no slackening of the overall drilling program.

St. Landry Parish: Danciger Oil & Refining Company's G. Pothier et al 1, which late in 1944 opened a shallow gas sand in the North Cankton field, has retested near the bottom of the hole and has been brought in to open a new condensate pay. Casing was perforated at 10,052-064 feet, about 400 feet below the regular field pay, and on potential test it made 113 barrels of 65-gravity distillate daily through a 10/64-inch choke with tubing pressure 3500 pounds and gas-oil ratio 16,020 to 1. It had originally tested dry in the field discovery horizon and then plugged back to perforate at 2790-97 feet to complete as a gasser, but it showed water and was killed and cemented in the upper before going back to make the latest completion in a new sand.

Southwestern Oil & Gas Company's Sam Haas Estate 1, wildcat 6 miles southwest of Opelousas, is drilling below 7500 feet in sand and shale.

Acadia Parish: Union Sulphur Company's Andrus Unit 1, Branch area, has been completed in the 11,000-foot sand opened by the company's Gueno Estate 3 in September, having perforated casing at 11,090-094 feet. On 24-hour test it flowed 156 barrels of 45-gravity oil daily through a ⅛-inch choke with tubing pressure 6300 pounds and gas-oil ratio 14,000 to 1. Total depth is 11,697 feet, and it had failed to produce on 2 tests made below this point, one just above total depth.

St. Charles Parish: Humble Oil & Refining Company's Sarpy 1, northeast of discovery in the Good Hope field, is preparing to complete in the 7800-foot discovery sand after failing to produce when tested in 2 sands considerably deeper. Casing has been perforated at 7841-44 feet. It had drilled to 10,147 feet and set casing at 9685 feet. The Pure Oil Company's General American Transportation Company 3, also at Good Hope, is completing through perforations at 7800-25 feet. On preliminary gauge it is flowing at a rate of 164 barrels of 36.6-gravity oil daily through a 7/64-inch choke with tubing pressure 1250 pounds but will test further before running final gauge.

Iberia Parish: Shell Oil Company's Smith-State Unit 1, Lease 500, in the Weeks Island area, is having to wash over and cut out stuck drill pipe at 11,149 feet. It had drilled to 13,551 feet, carrying nearly 11,000 feet of open hole before sticking pipe.

In the Jefferson Island area, The Texas Company's Jefferson Island 11 is drilling below 8152 feet in hard shale and lime. Stanolind Oil & Gas Company's Sabatier 1 is below 8430 feet, in shale and lime.

Jefferson Davis Parish: Continental Oil Company's Helen Pine 1, wildcat in the China area, has been abandoned at 9360 feet, finding no showings worthy of testing.

Stanolind Oil and Gas Company's Tupper 1, in the South Elton area, has tested oil in sand at 8073-85 feet, but is still drilling now at 8631 feet in shale. On a drill stem test at 8070-87 feet, it recovered 24 stands of 37.4-gravity pipe line oil.

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North Louisiana

New Field Is Confirmed; Delhi Field Extended

New field confirmed for Caddo Parish; Delhi field of Richland Parish extended 1¾ miles southeast.

Caddo Parish: Phillips Petroleum Company recorded a flow of 54 barrels in 3 hours through open tubing from Moneyham 1, C NE NW 5-18n-16w. Production is believed from Travis Peak sand through perforations at 5854-60 feet. Gas-distillate production is said to have been indicated at 5948-56 feet. Total depth is 6512 feet with 5½-inch casing set at 6077 feet. Testing continues.

Richland Parish: Rogers Lacy's May

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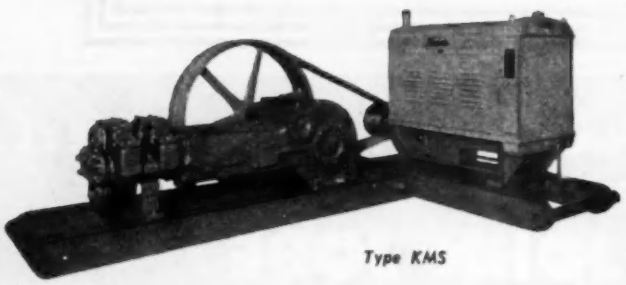

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1, C SW NW 26-17n-9e, has extended the Delhi field 1¾ miles southeast. It flowed 20 barrels hourly through casing from perforations opposite sand at 3462-70 feet until available tankage was filled. The well is shut in at reported total depth of 3800 feet. Production is cemented at 353 feet.

Charles H. Murphy, Jr., and Sun Oil Company are drilling in Ella M. Barrier 1, 22-17n-9e, 2 east of the Delhi discovery, below 3300 feet, having hit sand around 3234 feet and logged 63 feet in the Tuscaloosa section. A 15-minute drill stem test recovered 400 feet of pipe line oil from 3236-46 feet.

These operators have perforated and run a squeeze job at 3242-47 feet below the Massive in J. E. Holt B-1, C SE NE 21-17n-9e, northeast diagonal offset to the discovery, which has already indicated production. Oil was recovered on drill stem test from 3241-52 feet. Total depth is 3402 feet with 5½-inch casing cemented at 3296 feet.

Gulf Refining Company has staked location for D. G. Hoover 1, SE NW 21-17n-9e, Tuscaloosa test and northwest diagonal offset to the discovery well.

Tensas Parish: The Lake St. John field, which recently had a 2-mile south extension, apparently has a deeper pay horizon in the Glenrose section. The California Company's J. W. Brown 3, 46-9n-10e, perforated with 168 shots from 10,222-250 feet, and ran drill stem test using ¼-inch bottom hole and ⅜-inch top hole chokes. An unestimated volume of gas and spray of distillate were recorded with maximum flowing pressure of 2700 pounds. Pressure built up to 3800 pounds with top choke closed. Depth of hole is 10,287 feet, with string of 7-inch casing set at 10,285 feet.

Natchitoches Parish: The California Company's Annie Morrison 1, 12-13n-8w, has perforated at 5 different sections, none in its probable pay zones, the Eagleford from 3295-3333 and the Rodessa at 5116-33 feet. The company is trying to shut off possible salt water encroachment by perforating and squeezing cement in all horizons which indicated formation water. Total depth is 7324 feet.

Caldwell Parish: Shell Oil Company's Louisiana Central Lumber Company 1, SW SW NW 31-15n-3e, is at 11,475 feet in shale. Operators are mixing mud to add weight to drilling fluid and have made only 4 feet of hole in four days.

De Soto Parish: Grady Vaughn, Jr., has staked location and taken out permit for McGrew 1, C SW SW 34-16n-14w, which will seek pettit production.

Madison Parish: Sohio Petroleum Company is drilling below 6241 feet in H. Harper 1, 2-16n-13e.

☆

NATHAN JANCO, president of Centrifugal Casting Machine Company, gave an illustrated talk on "Centrifugal Castings" before the Engineers Club of Tulsa January 29. E. M. Newland, Oklahoma Steel Castings Company, presided and arranged for a display of this type of castings.

☆

S. MORSE WILLIS, division geologist of the central division for The Carter Oil Company, Tulsa, has resigned, effective February 1, to engage in private practice as a consultant. He joined Carter in 1916 and, with the exception of a leave of absence to serve in World War 1, had been continuously with the company.

Arkansas

State's Drilling Program Set Back by Failures

Wildcat failure in Nevada County and the possibility of two other failures have dampened Arkansas' drilling program.

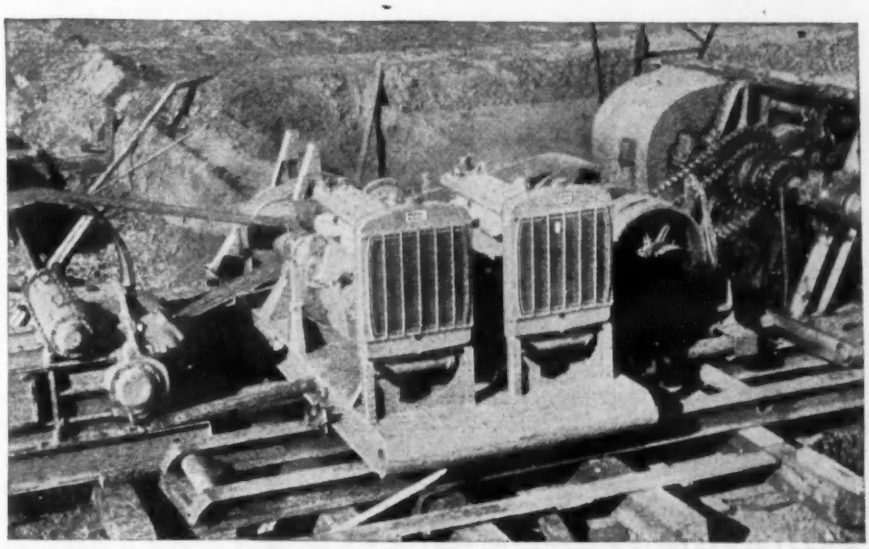
Union County: Marine Oil Company is preparing to test Travis Peak sand from 3563-79 feet in L. O. McGough 1, C NE NW 34-17s-13w, a wildcat north of the Urbana field. A core from the Smackover lime at 6293-6331 feet recovered oolitic lime, dense and porous, with asphaltic stains and indications of salt water.

Kerlyn Oil Company is correlating electrical survey in Chaurch 1, SW SW SE 22-19s-11w, at 4016 feet, but has obtained no showings.

C. H. Murphy, Jr., is drilling below 2800 feet in C. H. Murphy 1, 4-19s-15w, Smackover lime wildcat in the southern portion of the old El Dorado field.

Nevada County: Big West Drilling Company abandoned Pauline Mendenhall 1, NW NW NW 1-14s-20w, 3 miles north and east of Troy Pool. A core from 4725-33 feet recovered oolitic lime in the Smackover topped at 4720 feet with showings of salt water. The well went to 4795 feet before abandonment.

Miller County: The Atlantic Refining Company's Smackover lime wildcat test, Montana Realty Company 1, C SW SE 17-17s-28w, is an indicated failure. A



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core from 9184-95 feet recovered 6 inches of anhydrite and dolomitic lime and 9 feet of lime bearing oil odor and sulphur with salty taste. A core from 9195-9205 feet obtained 6 feet of lime with sulphur odor and stain of oil with strong indication of salt. Drilling will continue to 9350 feet before electrical log is run for correlation purposes.

Newton County: Aside from a test in the Village field and 2 tests for the Stephens field of Columbia County, the only other location of the week was a wildcat staked by William S. King, O. F. Moten 1, NW NE SW 25-17n-19w, 1 mile north and ¼ west of the operator's J. L. Shouse 1, 26-17n-19w, now shut down at 714 feet.

Southeastern

Mississippi County May Be Sulphur Producer

Opening of commercial sulphur production in Perry County possible; wildcats are testing in Marion and Jasper Counties.

Jasper County: Gulf Refining Company's Edwards-Bailey Unit 1, wildcat in the southwestern part of the county on the Soso prospect, is preparing to perforate casing at 7828-31 feet for a test of a 3-foot section following a squeeze job of the perforations at 7828-34 feet. A test at this point showed 100 percent salt water, then after squeezing, another test of the same point recovered fluid consisting of 30 percent oil and 70 percent salt water. Another squeeze job has been made in an effort to shut off the water, believed to be channeling from another level.

On the extreme south edge of the Heidelberg field, Gulf Refining Company's Mrs. L. P. Thornton 3 is preparing to complete after having first appeared to be a dry hole. With total depth 5510 feet in red shale, casing was run following electric logging survey, and perforations made at 5312-18 feet for a drill stem test which started flowing in 15 minutes and flowed at the rate of 150 barrels daily, 24.4-gravity oil.

Issaquena County: The California Company's Mississippi Alluvial Farms 1, wildcat which had been reported preparing to run casing at 8323 feet to test upper showings, has started drilling before setting pipe, and was below 8340 feet. It had shown heavy black oil in Smackover just below 8000 feet, but lower tests showed water.

Marion County: Humble Oil & Refining Company's A. Evans 1, on the flank of the Lampton salt dome, has perforated casing at 9137-42 feet for a test which showed salt water and has made another squeeze job. It was understood that the perforations were originally made only for cementing off possible water encroachment and tested incidentally. The best sand reported was around 9075 feet where a drill stem test before setting casing had shown gas and condensate.

Claiborne County: The Pure Oil Company has made location for A. L. Chapman 1 as a 10,500-foot wildcat in 13-11n-3e, 3 miles east of Port Gibson and 8 miles south of the Willows prospect where Danciger Oil & Refining Company are drilling. It is in an area where an Amerada Petroleum Corporation wildcat was drilled to 9002 feet with no showings.

Danciger's Claude Taylor 1, on the Willows block near St. Elmo, is drilling below 9207 feet, probably in the upper part of the Tuscaloosa, and scheduled to the Massive sand section. It had earlier tested salt water in the Eutaw.

Perry County: Unconfirmed reports state that Exploro Corporation and Minsearch Corporation, who have been been doing extensive shallow drilling around Mississippi domes, have established presence of sulphur in commercial quantities at shallow depths around the Richton dome in the northern part of Perry County. Thirty of the 35 wells drilled in the area are said to have indicated possibilities of sulphur production with possibility that as much as 2000 acres have been outlined.

Georgia

One of Georgia's 2 wildcats was abandoned as Sun Oil Company issued orders on Doster-Ladson 1, Land Lot 71, Land District 7, 35 miles west of Wycross, Atkinson County. Location was on a geological and seismic high. Depth was 4296 feet. Several sands were encountered but none showed oil.

Alabama

Leasing and drilling activity have increased in Alabama. H. L. Hunt is moving in materials for Maggie Utsey 3, 33-11n-4w, scheduled Eutaw test in the Gilbertown field of Choctaw County. His W. S. Scruggs, 33-11n-4w, another

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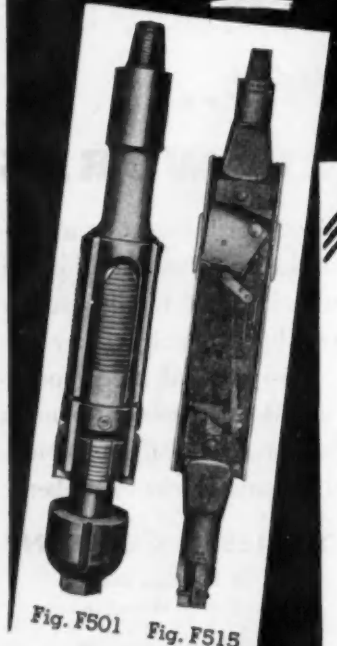

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field test, is drilling below 2885 feet. John Green's Lucille G. Dawsey 1, wildcat in C SW SE 20-10n-4w, was drilling at 2063 feet.

Washington County: J. T. Parks has cemented surface casing at 509 feet and is resuming drilling operations below 1016 feet in Hobson 1, C SW NE 9-8n-2w.

Mobile County: Sam Reed has a tentative location for a 7500-foot test in 24-2n-1e. The county is due for some work this spring by Humble Oil & Refining Company and Shell Oil Company, which has acquired about 15,000 acres.

Green County: J. F. Cooper has a 2500-foot wildcat test scheduled to begin in mid-February in 35-22n-1e, on a 1500-acre lease.

Florida

Humble Oil & Refining Company's Gulf Coast Realties 4, 20-48s-30e, Collier County, lost tools, recovered and is drilling below 5803 feet in lime.

In Dade County, the company's State 1, C NE NW 30-55s-36e, is below 11,339 feet in lime and anhydrite; and a third well, G. C. Carleton Estate 1, C SW NE 34-38s-29e, in Highlands County, is drilling hard dolomite below 1690 feet.

The Pure Oil Company's C. C. Hopkins 2, C NW NW 21-6s-9e, Gulf County, is drilling below 2267 feet in lime. In Monroe County, O. D. Robinson's State 1, T-59s-40e in Card Sound, is below 1440 feet.

Michigan

Wells Add to Criticism of State's 40-Acre Pattern

Supporting evidence against 40-acre locations in typical Dundee dolomite pools in Michigan continues to be developed with the Gordon Oil Company completing 2 good wells in different pools on "excepted" locations. Gordon's Weber 2, NE NW NE 7-19n-4e, northwest end of the Deep River pool, flowed 215 barrels per hour natural from Dundee at 2863 feet.

Last year Gordon was at the point of abandoning the lease after drilling a 40-acre pattern location which was absolutely dry. The producer is 660 feet north and 330 feet east of the dry hole. The same company drilled 2 3900-foot dry holes on a 160-acre lease in the Chippewa extension of the Fork field, one 1320 feet south of a 90-barrel-per-hour well, then moved off the pattern and completed a 43-barrel-per-hour Dundee well.

There appears to be considerable question whether the waste in manpower and materials and unquestioned oil loss can be justified by wide spacing regulations in most pools in the state.

Clinton County: Smith Petroleum Company will deepen to the Dundee on the Kellam 1, SW NE NE 33-8n-4w, Lebanon Township wildcat, but at least a small pay has been established in the Traverse limestone at 2565-75 feet. The well pumped from 10 to 15 barrels average from this zone.

Hennessy Given Leave

The Ohio Oil Company, pipe line department, Findlay, Ohio, announces that due to ill health, P. W. Hennessy, division superintendent of the Casper, Wyoming, division, has been granted a leave of absence.

Hennessy, 40 years with The Ohio Oil Company, started as a telegraph operator, became superintendent of telegraph, and later superintendent of the company's Wyoming division. For two years he was in the general office at Findlay as general superintendent of the pipe line department but returned to Casper in August, 1943, to supervise the company's pipe line department activities.

Effective February 1, R. M. Sackett was appointed division superintendent, Casper division, succeeding Hennessy. He started with the company as a telegraph lineman in 1919. Subsequently he has served as superintendent of communications in Wyoming, assistant division superintendent, and, during Hennessy's absence from the division, acting division superintendent.

Illinois Basin

Effingham County Pool Gets Production Boost

Bible Grove production given boost; White County test placed on pump; rank wildcat planned in Sangamon County.

Effingham County: Leland Waggoner has given the Bible Grove pool a production boost at Wood 1, SE SW SE, 28-6n-7e. Located ¼-mile northwest of Cypress production and 1¾ miles north of McClosky lime production, the well is showing for a good producer.

During a drill stem test, the well made gas in 5 minutes and flowed oil in 18 minutes from McClosky lime at

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2860-68 feet. No water showed. Operator is now waiting on cement.

White County: Duncan's Aud 1, ¼-mile north of the Herald pool, is being placed on pump after swabbing 168 barrels of oil in 19 hours, following 3000 gallons of acid in McClosky lime at 2965-70 and 3010-16 feet. Before acid the well made 136 barrels on pump in 24 hours.

Hamilton County: National Associated Petroleum Company has set casing for production test of Aux Vases sand at Downen 1, NW NW NE 1-5s-7e, ½-mile north of the Thackery pool. Pay was found at 3551-65 feet.

Richland County: Francis Wickers' Leathers 1, SE SE SW 25-2n-10e, wildcat testing McClosky lime at 3269-73 feet, was estimated good for 10 barrels of oil per hour after acid.

Sangamon County: Newest rank wildcat venture in the state is John W. Taft's Taft 1, SE NE 15-15n-3w. Drilling permit has been issued.

Coles County: Daugherty and Clark's Clark 1, NE SW NW 32-13n-8e, a wildcat venture, is shut down at 650 feet.

Kentucky

The Carter Oil Company's Drury 3, 1-O-20, ½-mile north of the St. Vincent pool, Union County, swabbed 100 barrels of oil in 9 hours from McClosky lime at 2556-63 feet, and continues testing.

☆

ESHELBY F. LUNKEN, president of The Lunkenheimer Company, Cincinnati, died January 25. He was 54 years old and has been connected with the company for 35 years, 26 of which he had served as president.

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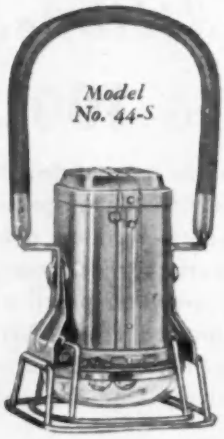

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WESTERN CANADA

Deep Test Slated Near Turner Valley Oil Field

Two wildcats staked in the Alberta Foothills, and two in the Southern Plains; 182,000 acres in the Foothills taken under reservation; 3 wildcats on the Southern Plains are unsuccesful.

Consumers' Co-operative Refineries Ltd., of Regina, Saskatchewan, first Canadian co-op to participate in oil exploration, will drill a deep test near Stimson Creek, a few miles southeast of Turner Valley field. The anitcline to be tested, designated as the "Outer Foothills Fold," is expected to show the Madison limestone at around 8100-8200 feet. Initial well, Co-op 1, has been staked in 1sd 11 22-17-2w5th, about 4 miles southeast of the current producing limit of Turner Valley.

South Brazeau Petroleums Ltd. has staked location for its initial test on the southerly part of the Shunda Creek Anticline, Devonian structure in the Central Alberta Foothills already the scene of 2 wildcat tests. The well, in the southeast quarter of 35-39-14w5th, will be drilled with cable tools.

McColl-Frontenac Oil Company and British Dominion Oil & Development Corporation have started their third joint South Alberta Plains wildcat. The new test, on the 22-129-acre Endon Prospect block, is Endon 9-29-6-7. Site is 1sd 9-29-6-7w4th, 11 miles south and east of their joint Bullshead wildcat (a dry hole), and 36 miles south of Medicine Hat.

Standard Oil Company of California has started a new Conrad area wildcat, Conrad-Province 75-32-B, in 1sd 12 32-5-15w4th. The venture is about a mile west of the line of 3 Standard Ellis sand producing wells. It is ½-mile south and ¾-mile west of the Conrad discovery well.

Imperial Oil Ltd. has added more than 40,000 acres to its large holdings in the Central Alberta Foothills. The new block extends from the upper part of Twp. 28 Rge. 5w5th to the top of Twp. 30 Rge. 5 & 6w5th. Its south end is 30 miles northwest of Calgary, and 20 miles north of the Shell of Canada discovery well at Jumping Pound. Bulk of the new block is under reservation from the Alberta government.

Crown Reservations totalling 57,400 acres have been taken up in the Foothills by 3 long-active Independents, F. A. Schultz, George Harris and National Petroleums Ltd. Their block has its northeast boundary 18 miles west and slightly south of Calgary. The block extends from the west side of Twp. 21 Rge. 4w5th north and west into Twp. 23 Rges. 5 & 6w5th. Southeast corner is 6 miles west of North Valley producing wells.

Arthur Wilmont Hunter, prime mover behind the Maxmont 1 (reputedly the world's deepest cable tool hole—9857 feet), has taken out Crown Reservations totalling 84,662 acres surrounding the current leases in the vicinity of the well. The reservations are in Twps. 7, 8, 9, 10 Rges. 1 & 2w5th and Twps. 8, 9, 10 of Rge. 3w5th, extending north from the Crows Nest Pass railway, from the towns of Pincher Creek, Lundbreck and Hillcrest, in the South Alberta Foothills.

U. S. Exploratory Completions

ARKANSAS WILDCATS

Nevada County — Failure: Big West Drlg. Co.'s Pauline Mendenhall 1, 330 s&e of nwc 1-14s-20w, elev 283 ft, Nacatoch 1218 ft, Saratoga 1510 ft, base Annona 1736 ft, Tokio 2100 ft, James 2325 ft, Smackover 4720 ft, abnd in oolitic lime and sw 4725-33 ft.

Union County—Failure: Nat. Assoc. Pet. Co.'s Annie Smith 1, ne ne ne 17-16s-17w, elev 188 ft, Midway 1280 ft, Arkdelphia 1754 ft, Nacatoch 1904 ft, Saratoga 2125 ft, base Annona 2380 ft, Tokio 2765 ft, Glenrose 2950 ft, James 3020 ft, Travis Peak 3265 ft, Cotton Valley 4440 ft, Smackover 6362 ft, Buckner 6160 ft, porosity 6370 ft, abnd 6395 ft.

CALIFORNIA WILDCATS

Kern County—Failures: Shell's K.C.L. 1, nw nw 24-29-27, bailed dry 3195-3215 ft, abnd 3273 ft.

Standard's Robbins Comm. 25-35, nw sw 35-29-26, test 6608-6678 oil and sw 6660-6688 ft, abnd 6869 ft.

Standard's K.C.L. 23-41, ne nw 6-30-26, Stevens 8330 ft, abnd 9996 ft.

Solano County — Failures: Standard's Fontana Farms 1, ne se 23-3-1, abnd 7944 ft.

Standard's Suisun Comm. 4, ne se 5-3-1, abnd 6947 ft.

ILLINOIS WILDCATS

Edwards County — Failure: Central Pipe Line et al's Binting 1, ne ne se 3-1s-14w, abnd 3075 ft.

Jefferson County — Discovery: Magnolia's Eubanks 6, sw nw nw 1-3s-1e, Ben 1899-1936, pump 203 bbls, td 1988 ft.

Jefferson County—Failure: Fox Bros.' Interstate Coal Co. 1, sw sw sw 4-4s-2e, abnd 2746 ft.

Marion County—Failure: Quick et al's Henning 1, se ne ne 31-3n-1e, abnd 1601 ft.

Richland County—Failure: C. E. Brehm's M. Brehm 1, nw ne se 11-2n-9e, abnd 3253 ft.

Washington County — Failure: Nat l Assoc. Pet.'s Kuhn 1, sw se nw 28-1n-1w, abnd 1731 ft.

Wayne County—Failure: Pure's Miller 1, se se nw 27-2n-7e, abnd 3102 ft.

INDIANA WILDCATS

Gipson County—Failure: Sol Bronstein's Heston 1, sw sw nw 9-3s-13w, abnd 2012 ft.

Posey County—Discovery: Central States et al's Blackburn 1-A, sw sw nw 20-6s-13w, pump 15 bbls, Penn sd 1104-07 ft, td 1107 ft.

KANSAS WILDCATS

Cowley County — Discovery: Creekmore & Rooney's Seacat 1, nwc 26-33s-4e, pump 153 bbls 41-gr, Miss 3103-08 ft, td 3113 ft.

Greenwood County — Failure: Glen Smith's Red Ranch 1, nec 13-23s-8e, Miss 1871 ft, abnd 2590 ft.

Kingman County—Failure: Magnolia's Callahan 1, nw se se 13-28s-9w, Miss 4162 ft, Arb 4515 ft, abnd 4548 ft.

Pratt County—Failure: Skelly's Moore 1, ne se ne 6-29s-13w, Simp 4556 ft, Arb 4644 ft, abnd 4670 ft.

Rawlins County—Failure: B&R Drlg. Co.'s Scott 1, nec 23-2s-23w, Lans 3380 ft, Arb 3633 ft, abnd 3666 ft.

Russell County — Failures: Joe Aylward's Mares 1, nw nw ne 13-15s-11w, Arb 3291 ft, abnd 3308 ft.

Kiowa Drlg. Co.'s Dewald 1, ne sw sw 31-15s-15w, Lans 3146 ft, Arb 3460 ft, abnd 3476 ft.

Saline County — Failures: Westgate Greenland's H. Shank 1, nec 19-13s-3w, Hunton 3357 ft, Arb 3748 ft, abnd 3819 ft.

Anderson-Prichard's Olssen 1, nwc sw 14-15s-1w, Hunton 2896 ft, Viola 3154 ft, abnd 4198 ft.

Sumner County—Failure: R. L. Carnaham's Parker 1, nec se 7-30s-2e, Lans 2618 ft, Miss 3148 ft, abnd 3650 ft.

KENTUCKY WILDCATS

Daviess County—Discovery: W. Dameron et al's Stagner 1, 25-M-30, pump 20 bbls, Bethel 1388-1419 ft, td 1426 ft.

Heart County—Failure: H. Fermer et al's Wells 1, 7-J-42, abnd 1500 ft.

SOUTH LOUISIANA WILDCAT

Acadia Parish — Oil Discovery: Union Sulphur-Magnolia's Medlenka 1, 748 e 591 n of swc 11-8s-2w, Iota area, sd 9380-90 ft, perf 9380-90 ft, flow 215 bbls 32-gr oil, 8% sw, ¼-in, gor 330/1, td 9692 ft.

SOUTH LOUISIANA NEW PAY TESTS

St. Landry Parish—Cankton Distillate Discovery: Danciger O&R Co.'s G. Pothier 1, (OWWO) 1391 n 330 w 12-8s-3e, Disc 7190 ft, Het 7616 ft, 1st Marg 7990 ft, Domingeaux 8395 ft, Burleigh 9510 ft, show sw, cut fault 10,020 ft, sg 10,050 ft, perf 48 shots 10,052-64 ft, flow 113 bbls 65-gr, 10/64-in, gor 12,020/1, sitp 3850 lbs, td 10,255 ft.

Vermilion Parish—W. White Lake Oil Discovery: Union of Cal.'s State-White Lake B-1, 2660 e 1320 s of A-1 disc, T-14s-2w, perf 15 shots 11,840-45 ft, flow 92 bbls 33.8-gr, 7/64-in, tp 1575 lbs, td 11,996 ft.

MISSISSIPPI WILDCATS

Adams County—Carthage Point Oil Discovery: Pure's J. M. McDowell 2, 12-6n-3w, elev 70 ft, perf 65 shots 10,273-86 ft, flow 91 bbls 54-gr dist, 2 mln gas, 8/64-in, tp 3175 lbs, shut in, td 10,330 ft, pb 10,295 ft.

Clarke County — Langsdale Oil Discovery: Kirby Pet. Co.'s Long Bell Pet. Co. 1, c nw nw sw, elev 235 ft, Chalk 2775 ft, Eutaw 3646 ft, shale 3662-72 ft, perf 60 shots 3726-39 ft, pump 144 bbls heavy black oil, td 5620 ft, pb 3790 ft.

Jasper County — Failure: Roy Fisher-F. R. Jackson's Huddleston Heirs 1, 9-10n-10w, elev 230 ft, Wilcox 1328 ft, Midway 3757 ft, Chalk 4272 ft, Eutaw 5733 ft, Morrison 5743 ft, abnd 5854 ft.

OKLAHOMA WILDCATS

Caddo County — Discovery: C. C. Lynch's Peterson 1, ne ne nw 3-5n-12w, flow 33 bbls 36-gr, ¼-in, Penn 794-814 ft, td 814 ft.

Grady County—Failure: Olsen Drlg.'s Johnson 1, nw se 35-6n-8w, abnd 6184 ft.

Hughes County — Failures: Northern Ordnance's Empire 1, sw sw ne 4-5n-11e, abnd 5724 ft.

Vulcan O&G Co.'s Harrell 1, sw sw nw 34-6n-10e, abnd 4602 ft.

Jefferson County—Failure: Magnolia's Williams 1, sw se 8-6s-5w, abnd 8290 ft.

Oklahoma County—Failure: Fox & Fox's Liston 1, sw nw nw 6-13n-2w, Dense 6470 ft, abnd 6782 ft.

Seminole County — Failure: Northern Ordnance's Sonanke 1, sw nw sw 1-5n-6e, Crom 2400 ft, abnd 2470 ft.

WEST TEXAS WILDCATS

Crockett County — Failures: Moore Explor. Co.'s Halff Est. 1-66, 660 ft snl 1980 ft ewl I&GN Ry. 66, blk 1, abnd 1508 ft.

Watchorn O&G Co.'s Thompson 3, 990 ft out sec I&GN Ry. 73, blk 1, elev 2275 ft, anhydrite 558 ft, salt 680-830 ft, Yates 875 ft, abnd 1376 ft.

Culberson County—Failure: Robt. B. Richter et al's M. A. Grisham 1, 1426 ft ewl 1435 ft nsl T&P Ry. 36, blk 59, Tsp. 6, elev 3390 ft, Delaware li 3210 ft, sd 3283 ft, abnd 5504 ft.

Hockley County—Failure: Eugene Constantin's V. DeKatnick 1, 440 ft out nec lab 17, Lge 698, State Capitol Lands, elev 3682 ft, anhydrite 1980 ft, abnd 6507 ft.

Lynn County—Failure: Texas Co.'s M. C. Edwards 1, c se se Georgetown Ry Co. sec 158, elev 3230 ft, anhydrite 2070 ft, San Andres 4040 ft, abnd in sw 6630 ft.

Pecos County — Failure: Magnolia's C. A. Hart-State 1, 660 ft from nw&swl H&TC Ry. 8, blk 3, elev 2404 ft, anhydrite 360 ft, Yates 1280 ft, McKee 5558 ft, Waddell 6073 ft, Ellenburger 6465 ft, jkd & abnd while testing at 6100 ft, td 6754 ft.

Terry County—Oil Discovery: Leland Fikes and John Murchison's Alexander 1, 670 ft snl 542 ft ewl PSL 18, blk K, 7¼ mi sw Slaughter fld, elev 3554 ft, anhydrite 2360 ft, brown li 4050 ft, San Andres 4400 ft, pump 98 bbls 32-gr oil, 3% bs&w appearing last 2 hrs, 3000 gals acid 5121-57 ft.

Yoakum County — Failure: Honolulu Oil Corp.'s McLane-T. P. Coal 1, (OWDD) c nw nw sec 324, blk D, J. H. Gibson sur, otd 5428 ft, elev 3595 ft, brown li 4200 ft, abnd 8016 ft.

WEST CENTRAL TEXAS WILDCATS

Comanche County—Failure: Kerlyn Oil Co.'s Manes 1, 647 ft nsl 469 ft ewl of I. Truett sur 103, A-932, abnd 2923 ft.

Jones County—Oil Discovery: Hunt Oil Co.'s T. J. Amason 2, 3528 ft nsl 2997 ft ewl Samuel Jones sur 266, elev 1782 ft, Flippen li 2545 ft, Canyon 3592 ft, pump 126 bbls 40-gr, shot 60 qts nitro 3595-3606 ft, td 3608 ft.

SOUTHWEST TEXAS WILDCATS

Duval County—Failure: Hiawatha O&G Co.'s Raul Oliveira 1, 466 fr s&el 500-ac lse, Andres Garcia sur A-657, 3 mi se Benavides, elev 360 ft, abnd 6065 ft.

Webb County—Failure: Union Prod. Co.-Continental's O. W. Killam 1, 330 fr m/ely/el 330 fr m/nly/sl Rafael Sciaraffa sur A-1570, Carrizo 5180 ft, abnd 8115 ft.

LOWER TEXAS COAST WILDCATS

Dewitt County — Failures: Rowan Dr. Co.-Hope and Ranger's J. C. Allis 1, 467 fr nw&nel 102-ac lse, H. P. Cook sur, 4 mi s of Westhoff, Wilcox 5284 ft, abnd 6502 ft.

Sohio's E. G. Schiwetz 1, 1980 fr nel 660 fr nwl 215.7-ac tr, abnd 8403 ft.

Goliad County — Oil Discovery: Amerada's Albert Waitschies 1, 560 fr sel 2260 fr nel 188,7-ac tr, E. J. Armstrong sur, sand 5920 ft, 60 perfs 5920-35 ft, flow 22 bbls 40.3-gr, ¼-in, gor 1509/1, td 13,226 ft.

Hidalgo County—Failure: Barnsdall's C. F. Winfield A-1, 467 fr e&sl 100-ac lse and blk 44

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A-110-TC	11,000
A- 80-TC	7,500
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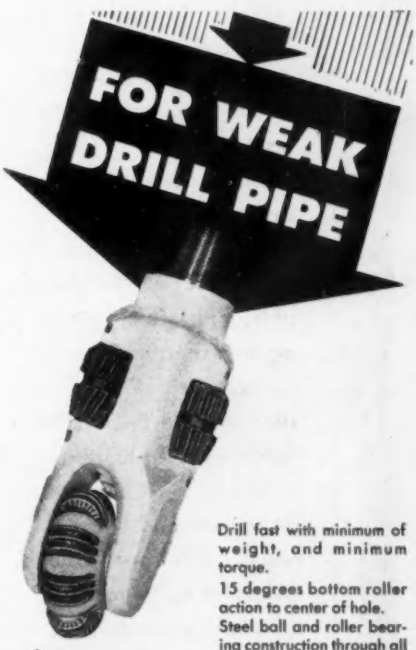

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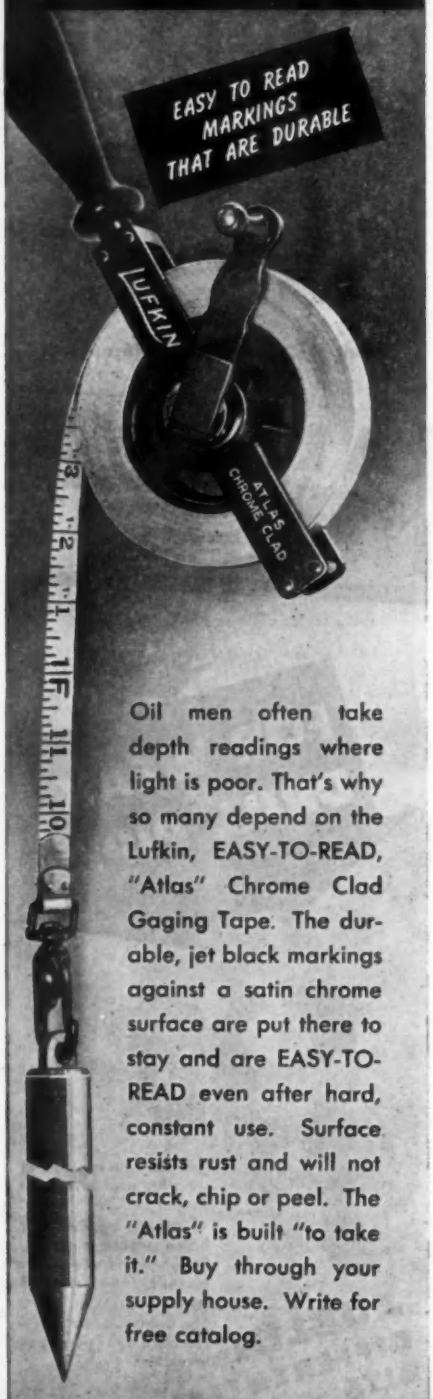

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Karnes County—Failure: Southern Minerals Corp.'s S. Lorenz and R. L. Mendoza 1, 1100 fr sl 660 fr wl 85-ac lse, J. A. Lorenz pre-emp sur, abnd 4256 ft.

Kleberg County—Ricardo Oil Discovery: Tide Water's E. W. Houser 1, 660 fr e&sl 160-ac lse and blk 36, 2 mi ne Ricardo, sand 7243 ft, 12 perfs 7266-68 ft, flow 208 bbls 37-gr, ⅛-in, td 8650 ft.

Nueces County—Gas-Distillate Discovery: L. M. Lockhart's Carrie Cheeves 1, 1650 fr s&el 1043-ac lse, San Antonio de Agua Dulce and Casa Blanca Grs, 3150 w nw of dry hole on Oliver Bird land, 24 perfs 5168-82 ft, open flow 2 mln gas, plus 11 bbls cond, 16 bbls sw, td 9097 ft, may use as input well.

Victoria County—Gas Discovery: Raymond D. Reynolds et al's Sallie D. Ragsdale 1, 1800 sw of swl F. A. Gillespie & Sons 80-ac lse 1800 sw of nel 1000-ac lse, J. H. McConnaughey sur, sand 4443 ft, 16 perfs 4436-44 ft, open flow 36 mln gas, td 5978 ft.

TEXAS GULF COAST WILDCATS

Chambers County—Failures: Jack Frazier's Eliz. H. Moore Est. 1, 1550 s 330 w of nec T&NO sur 266, sect 29 474-ac lse, abnd 9002 ft.

Rowan Drlg. Co.'s Royalty Corp. of Beaumont 1, 330 fr n&wl 98.8-ac lse, Henry Burt sur A-319 on sect 41, abnd 9300 ft.

Harris County—Addicks Oil Discovery: Texas Co.'s Mrs. Madge Hopkins 1, 1750 fr wl 1980 fr sl R. H. Davis sur A-225 and 269-ac lse, sand 7703 ft, perf 42 shots 7702-08 ft, flow 4.13 bbls 45-gr, ¼-in, tp 25 lbs, td 8014 ft.

Matagorda County — W. Markham Gas Discovery: Atlantic's Denman-Kountze C-3, 880 fr wl 660 fr nl lot 12 150-ac lse, Henry Parker sur, midway between No. 1 and No. 2 dry holes on "C" lse, perf 4865-78 ft, flow 4 mln gas, 4 bbls wtr white cond, ¾-in, gor 1,000,000/1, tp 2600 lbs, cp 1885 lbs, td 5311 ft.

TEXAS GULF COAST OUTPOST

Chambers County—Seabreeze Failure: Sun's R. M. White Est. D-1, 1550 fr el 1600 fr sl T&NO sur 130, 572.5-ac lse, sw of prod, elev 9.4 ft, abnd 9507 ft.

EAST TEXAS WILDCAT

Cherokee County — Failure: Crown Central Pet. Corp.'s Stockton-Magnolia 1, 330 ft out swc 57.7-ac tr, or 2825 ft ewl 1755 ft nsl Stevens Jarboe sur, elev 431 ft, Pecan 3245 ft, Austin 4095-4260 ft, Woodbine 4304 ft, abnd 4491 ft.

NORTH TEXAS WILDCATS

Archer County—Failure: Fine & Silk Oil Co.'s Ayres 1, 407 ft ewl 2650 ft snl of 369-ac tr, Michael sur A-128, abnd 169 ft.

Grayson County—Failure: A. Lee Andree-P. Parsons' Whiting 1-a, 5950 ft snl 3930 ft ewl of Daniel Dugan sur, 2nd hole lost, jkd 3308 ft.

King County — Failure: Shamrock O & G Corp.-Reser-Pendleton's Masterson 2, c se se sec 164, blk A, R. M. Thompson sur, elev 1779 ft, Canyon 4653 ft, Strawn 5350 ft, Mississippian 6150 ft, abnd 6180 ft.

Young County—Oil Discovery: R. J. Watson et al's Choate 1, 150 ft snl 250 ft wel TE&L Co. sec 254, elev 1146 ft, pump 6 bbls oil, 15 bbls wtr, sand 610-20 ft.

WYOMING WILDCATS

Carbon County — Oil Discovery: Sinclair's Coffman 1, se ne ne 21-26n-89w, Bailey Dome, flowed 370 bbls 37-gr oil in 14 hrs fr Tensleep, perf 5145-5190, Shannon 1704, Frontier 3248, Dakota 4505, Lakota 4652, Tensleep 5098, td 5234 ft, pb 5195 ft.

Hot Springs County—Oil Discovery: Pacific Western's Govt. No. 1, se ne ne 21-43n-92w, Kirby Creek, pump 20 bbls 20-gr oil in 24 hrs fr Embar, perf 3420-3445, 3461-3493, Dakota 1625, Lakota 1710, Sundance 1945, Embar 3418, Tensleep 3675, Madison 4342, td 4427 ft, pb 3600 ft.

Niobrara County—Failure: Texas Co.'s Henderson 1, ne sw ne 18-33n-66w, Keeline area, dry in Deadwood, abnd 3251 ft.

WESTERN CANADA WILDCATS

South Alberta Plains—Twin River: Pacific Oil & Refineries' Twin River 3, lsd 16, 3-2-20w4th, abnd 5508 ft, 154 ft in Devonian Dolomite.

Bullshead: McColl-Frontenac Oil Co.-British Dominion Oil & Devel. Corp.'s Bullshead 14-34-8-7, lsd 14 34-8-7w4th, abnd 4763 ft in Devonian Dolomite.

Conrad: California-Standard Co.'s Conrad-Province 75-36C, lsd 12 36-4-15w4th, abnd 3040 ft, top of Madison li.

United States Wildcat Starts

ALABAMA

Winston County: Glen Rose's Z. A. Boshell 1, c nw ne 18-12s-8w, dr 2004, will acidize.

ARKANSAS

Newton County: W. S. King's C. F. Moten 1, nw ne sw 25-17n-19w, lcn.

CALIFORNIA

Kern County: J. J. Tavis et al's 3, se sw 8-27-28, Mt. Poso area, lcn.

Los Angeles County: Western Gulf Oil Co.'s Stevens B-1, se ne 5-4-17, Oak Canyon area, lcn.

ILLINOIS

Effingham County: W. O. Schoick's Schmoke 1, ne se se 10-7n-5e, dr.

Franklin County: C. E. Brehm's Franklin County 1 (OWDD), nw nw sw 5-5s-3e, dr.

Madison County: A. J. Slagter's Haltman 1, se ne sw 5-4n-6w, dr.

Washington County: H. H. Hubbard's Doolin 1, se se se 25-3s-5w, lcn.

KANSAS

Barber County: Stanolind-Skelly's O. Chair 1, sec ne 7-31s-11w, lcn.

Barton County: Carter Oil's Bates 1, ne sw ne 23-18s-13w, dr.

Kingman County: Kingwood Oil's Fulton 1, nec 6-27s-7w, lcn.

McPherson County: E. K. Carey et al's Leffler 1, ne nw nw 24-19s-1w, dr.

Sedgwick County: Beech Aircraft's Brooks 1, ne se nw 36-28s-2e, lcn.

Stafford County: Republic Nat. Gas Co.'s Asher 1, nw nw ne 1-24s-13w, lcn.

Stanton County: Stanolind's Fegan 1, c of sec 3-27s-39w, lcn.

NORTH LOUISIANA

Bienville Parish: T. L. James' Southern Paper Bag Co. 1, nw 23-17n-7w, lcn 6500-ft test.

Ohio Oil Co.'s Woodward-Walker 1, 31-17n-7w, lcn Travis Peak or 7000-ft test.

Red River Parish: Carter Oil Co.'s W. Colbert 1, c ne se 16-13n-9w, lcn 6500-ft test.

MISSISSIPPI

Greene County: Humble's Harry Stover et al 1, 20-3n-7w, building roads.

Jones County: Gulf's D. G. Flint 1, c sw ne 35-9n-12w, Tuscaloosa test, bldg roads.

Tallahatchie County: Ogg and Clark's D. G. Bardwell 1, 5-25n-3w, lcn Paleozoic test.

Wayne County: Gulf's Lillian Johnson 1, c nw ne 34-10n-9w, lcn.

NEW MEXICO

Lea County: D. C. Devito et al's State-Cities Service 1, c ne sw 31-16s-33e, lcn 4500-ft San Andres test.

T. B. Brown et al's (was O. F. Featherstone) Watkins 1 (OWDD), c sw se 31-18s-32e, deepen fr 3500 to 5000 ft, elev 3673 ft, Yates 2750 ft.

OKLAHOMA

Ellis County: Gulf's Kellam 1, ne nw ne 5-19n-26w, c&p.

Garvin County: Vickers Pet.'s Ballew 1 sw sw se 18-1n-1e, lcn.

Logan County: Hill et al's Datin 1, ne ne se 11-16n-4w, lcn.

Major County: Superior's Manning 1, ne ne nw 27-22n-10w, dr 1540 ft.

Okfuskee County: Tom Leach's Allen 1, se nw sw 16-13n-9e, dr 825 ft.

Oklahoma County: Big Chief Drlg.'s Haynes 1, ne ne sw 8-11n-4w, lcn.

WEST TEXAS

Andrews County: Sinclair Prairie's G. E. Ratliff 1, c sw se PSL 25, blk 73, 3 mi se 11,322-ft granite failure, lcn 11,500-ft Ellenburger test.

Brewster County: Arco Oil Co.'s Hopson 1, 1000 ft nsl 500 ft wel D&W Ry. Co. 167, blk G-1, 3000-ft test, sd repairs 550 ft.

Kent County: Union of Calif.'s Wallace 1, c nw sw W&NW Ry. 97, blk G, lcn.

Upton County: J. W. Ellis & Sons' Burleson 1, 2310 ft fr sel 2310 ft fr swl H&TC Ry. 76, blk 35, lcn 3500-ft cable test.

Winkler County: Humble's Hendrick 1-D, c sw ne PSL 22, blk B-12, extension test 1-1/3 mi s by e of Hendrick field, lcn 3100-ft San Andres test.

SOUTH CENTRAL TEXAS

Bexar County: J. F. Hair's Duke Carver 1, 460 fr el 660 fr sl 230.5-ac lse, Jas. Taylor sur A-761, lcn 1500-ft test.

Frio County: Humble's H. & R. C. Roos 1, 5600 fr nwl 9240 fr nel 9170-ac lse and S. F. Austin sur 964, lcn 8000-ft test.

SOUTHWEST TEXAS

Duval County: M. E. Davis' Atlee Parr 1, 5000 n 1000 e of sw interior cor of 7139.5-ac lse, San Andres Fr, blk 66, 7100 sw of No. 1, lcn 6000-ft test.

J. W. Gorman and McDermott's J. F. Welder 1, 330 fr w&sl sect 211 2600 sw of No. 1, J. Poitevent sur, 455.8-ac lse, lcn 3500-ft test.

Butcher-Arthur-Taylor Ref. Co.'s C. M. Robinson A-1, 330 fr s&wl 320-ac lse, AB&M sur 408, lcn 5500-ft test.

LOWER TEXAS COAST

Jim Wells County: La Gloria Corp.'s G. W. Reynolds 1, 300 fr nl I&GN sur 141 1750 nw at ra fr sel Reynolds 2945-ac tr, lcn 5500-ft test.

Lasalle County: Gust Tsemelis' Louis Taeger 1, 330 fr s&el sect 8 H. H. Wallace subdvn 40-ac lse, lcn 2000-ft test.

Refugio County: Hewit & Dougherty's K. D. Roche 3, 1475.8 fr nl 467 fr wl blk 63 Thos. O'Connor sur, 934 w of Well No. 2, 200-ac lse, elev 45 ft, lcn 7000-ft test.

San Patricio County: Hewit & Dougherty's Walter F. Timon 1, 467 fr n&el blk 120 San Patricio de Hibernia Gr, 1200-ac lse, lcn 6500-ft test, spud.

Jay Simmons' H. R. Brown Est. 1, 430 fr nel

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OIL AND GAS LEASE

WAR FOOD ADMINISTRATION, Farm Security Administration, Dallas, Texas. Sealed bids in duplicate will be received in this office until 3:00 o'clock P.M. (cwt), February 26, 1945, and then publicly opened offering bonus for operating rights in connection with oil and gas leases on lands located in Harrison and Panola Counties, Texas, being a part of the Sabine Farms Project, Marshall, Texas. The project area of approximately 9,592 acres has been divided into six subdivisions for leasing purposes. An official subdivision plat of Sabine Farms Project is on file in the County Clerk's office of Harrison County, Texas. The United States owns an undivided three fourths interest in the mineral rights in four tracts and an undivided three eighths interest in the mineral rights in two tracts with the exception of specific reservations applicable to three tracts as set forth in the legal description included in the invitation. Further information regarding mineral rights and identification of the tracts to be leased may be obtained from a plat of the Sabine Farms Project entitled "General Layout Map" which will be furnished interested parties upon request This plat is available for inspection in the office of the Project Manager, Sabine Farms Project, Marshall, Texas, and in the Regional Office of this Administration, Dallas, Texas. Award of lease(s) will be made to bidders who can show sufficient experience and financial resources and prove citizenship. Interested parties may obtain bid documents and operating regulations from the office of the Regional Business Manager, Farm Security Administration, Parry Avenue at Commerce, Dallas, Texas.

878 fr nwl blk 15 J. J. Summers subdvn and 80-ac lse, lcn 6000-ft test.

TEXAS GULF COAST

Liberty County: Glenn H. McCarthy's A. G. Blanke 1, 850 fr nl 400 fr el 115.5-ac lse 2800 n of sl Levi Barrow sur A-137, 11,000-ft test, bldg dk.

NORTH TEXAS

Archer County: Frank Wood and A. R. Dillard's J. L. O'Keefe 2, 600 ft nsl 450 ft wel sec 32, blk 5, Clark-Plumb sur, lcn 1250-ft rotary test.

D. H. Bolin et al's C. L. Abercrombie 1-K, 900 ft snl 150 ft ewl blk 160, J. W. Harris subdiv, lcn 1400-ft rotary test.

G. E. Kadane & Sons' Oil Investment Co.-Texaco 1, 150 ft snl 2100 ft wel blk 126, J. W. Harris subdiv, lcn 1400-ft rotary test.

Clay County: Wayne H. Hammon et al's H. W. Bryans 1, 660 ft out nec M. F. Simms sur A-972, 1 mi e by s Dean, lcn 6000-ft Ellenburger test.

Cooke County: Seitz-Comegys & Seitz's J. L. Parker 1, 660 ft n 360 ft w of nec of T. P. Henry sur A-574, but in S. E. Clements sur A-290, 6000-ft test, dr 1260 ft.

HELP WANTED

MECHANICAL ENGINEER
Leading manufacturer of drilling and production tools, located in Southern California, has opening for man, 25-35, pref. M.E. degree, should have had some experience in design and/or oil field operation. We sincerely believe this to be a worthwhile opportunity for the right man. Salary will be in line with past record and ability. Write fully giving outline of personal data and experience for past ten years. Enclose small photo if possible. Address: Box 51, c/o The Oil Weekly, Houston, Texas.

■ Wanted by a consulting geophysical organization, Petroleum Engineers with Hayward Mudlogging experience or its equivalent. Immediate openings in Venezuela. Excellent opportunity for advancment to managerial positions throughout the world. Address: Box 36, c/o The Oil Weekly, Houston, Texas.

■ GEOLOGIST or GEOPHYSICIST with several years experience in field gravity surveys; for research computation, interpretive analysis and geological correlation of gravity data. Major oil company engaged in expanding gravity exploration program. Give full information, education, experience, availability status, salary expected, etc. Address: Box 1, c/o The Oil Weekly, Houston, Texas.

■ Engineers Wanted: Graduate Ch.E., M.E. or E.E., 20 to 29 years of age, having refinery or laboratory experience. Essential industry with postwar continuance. State education, experience, salary expected, and date of availability. P. O. Box 2546, Houston 1, Texas.

NOTICES

■ CAPITAL SEEKERS—Interested in raising $25,000 or more should write to Amster Leonard, Fox Bldg., Detroit 1, Michigan.

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New Orleans 12, Louisiana

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■ Over twenty years experience selling oil industry equipment and supplies in Texas, Oklahoma, Louisiana, Arkansas, Kansas and New Mexico; interested in selling on salary and commission or straight commission basis. Wide acquaintance, highest references. Immediately available. Address: Box 3, c/o The Oil Weekly, Houston, Texas.

ADVERTISING RATES

TRADING POST SECTION

Regular classified advertisements for this special section, set in type this size without border, take flat-rate of 7 cents per word for the first insertion and 5 cents per word for each subsequent insertion of same copy. Display advertisements for this section, set in suitably larger type with ruled border, are $5.00 per inch for the first insertion and $4.00 per inch for subsequent insertions. Remittance must accompany copy which should be sent to:

Trading Post Section, The Oil Weekly
P. O. Box 2608 **Houston 1, Texas**

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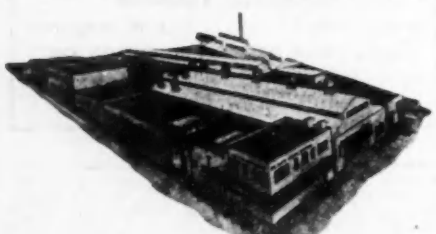

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Founders • MANUFACTURERS • *Machinists*
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Squeaks from the Bull Wheel

Can't Fool a Pig

"Is he a liar?"

"Well, when feeding time comes he has to get somebody else to call the hogs."

Short, Short Story

Once upon a time there was a big spinster, a middlesized spinster and a little spinster. They came home one night and the big spinster looked in her room and said: "Somebody's been sleeping in my bed!"

The middle-sized spinster looked in her room and said: "Somebody's been sleeping in my bed!"

The little spinster looked in her room and didn't say anything. She just turned out the light.

At the Fireman's Ball

There was a young girl from St. Paul,
Who wore a newspaper dress to a ball;
But the dress caught on fire
And burned her attire,
Front page, sports section and all!

Lucky Fellow—

"Doctor, I'm afraid my husband is losing his mind. Sometimes I talk to him for hours and then discover he hasn't heard a word I said."

"That's not an affliction, madam. That's a gift!"

Sin Quietly, Please

A minister on a train continued to read his Bible without looking up when a drunk tapped him on the shoulder and said: "I don't believe a word in that book."

After a moment the drunk repeated: "I don't believe a word in that book." Again there was no response, and this time the drunk shouted: "I don't believe a word in that book!"

Then the minister spoke: "My good man, would you mind going to hell quietly?"

Poet's Nook

I'm all done with dames.
They cheat and they lie.
They prey upon us males
To the day that we die.
They tease and torment us
And drive us to sin . . .
Say—look at that blonde
That just came in!

Minor Evasion

He had hard luck fishing, and on his way home he entered the fish market and said to the dealer, "Just stand there and throw me five of the biggest of those trout."

"Throw 'em? What for?"

"So I can tell the family I caught 'em. I may be a poor fisherman, but I'm no liar."

Modern Mother Goose

Humpty Dumpty sat on the wall;
Humpty Dumpty had a great fall;
All the king's horses and all the king's men
—Had eggnog.

When a Man Mellows

In New Orleans they tell of a northerner who walked into a bar, declaimed loudly that the French Quarter was smelly, the women ugly and the streets shabby.

But after one long pull on a Sazerac, a local drink, he thawed a bit. "I guess maybe a few of the girls here are pretty."

He ordered a second Sazerac and a few minutes later observed: "The French Quarter does have a sort of charm to it, I suppose."

He ordered a third Sazerac, tossed it down, and pulled out a $100 bill. "Gimme my change in Confederate money."

The Realist

"I've a friend I'd like you girls to meet."

Athletic girl: "What can he do?"

Chorus girl: "How much money has he got?"

Literary girl: "What does he read?"

Religious girl: "What church does he belong to?"

Stenographer: "Where is he?"

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823½ Monroe Street, Fort Worth, Texas

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STANDCO BRAKE LINING
for the easiest brake known. It "feeds off" evenly. Standco never scores brake rims. See page 2808 Composite Catalog.
Standco Brake Lining Co.
HOUSTON

Notes for the Equipment Buyer and User

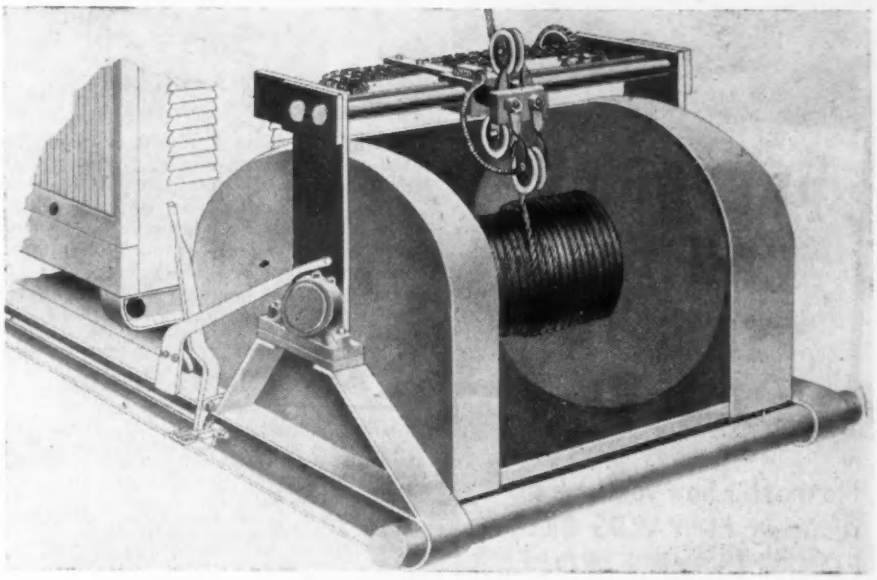
Wire Rope Level Wind

UNIVERSAL OIL TOOL COMPANY

Universal Oil Tool Company, P. O. Box 2122, Houston, has developed the Brown Wire Rope Level Wind for use on drilling rigs. It is claimed that the device offers several distinct advantages for operators.

It is a positive line spooler. Hazards of injury to employes trying to spool the sand line with a crowbar or piece of pipe are eliminated. The life of wire rope is prolonged through proper spooling. Piling up or cutting in of the line are eliminated. Even spooling is accomplished at low or high speeds. Time is saved by measuring in, and through the use of a measuring device, faster trips are possible. The wind is adjustable to any size line or reel.

A measuring device and weight indicator is optional with the outfit.



Universal Oil Tool Level Wind

Cummins Names Manager Of Ohio, Michigan Area

Cummins Engine Company, Inc., Columbus, Indiana, appointed F. W. Sparks manager of the Cleveland region, with headquarters at 805 Fidelity Building, Cleveland 14. This region includes Ohio and Michigan.

Sparks has been a member of the Cummins sales department for several years, most recently having been located at the home office.

F. W. Sparks

☆

LOUIS ROARK, chief geologist for Margay Oil Corporation, Tulsa, has resigned effective February 1. He has been with Margay about ten years.

HOMCO Opens Branch Office In Eastern Venezuela

Houston Oil Field Material Company, Houston, has opened a cutting and fishing tool service office in eastern Venezuela. The service branch will be centrally located at one of the drilling camps, and will be under the supervision of C. G. Wheeler who has served in the cutting and fishing tool department more than 15 years.

Castings Bulletin Ready

The Steel Founder's Society of America, 92 Midland Building, Cleveland, Ohio, has published a bulletin on steel castings for industry. The bulletin traces the growth of metals casting and illustrates how steel castings have helped build industrial America.

M. J. Flanagan Elected Gaso Pump President

M. J. Flanagan

H. F. Stover

M. J. Flanagan was elected president and general manager of Gaso Pump & Burner Manufacturing Company, Tulsa, at the recent annual meeting.

T. H. Flanagan

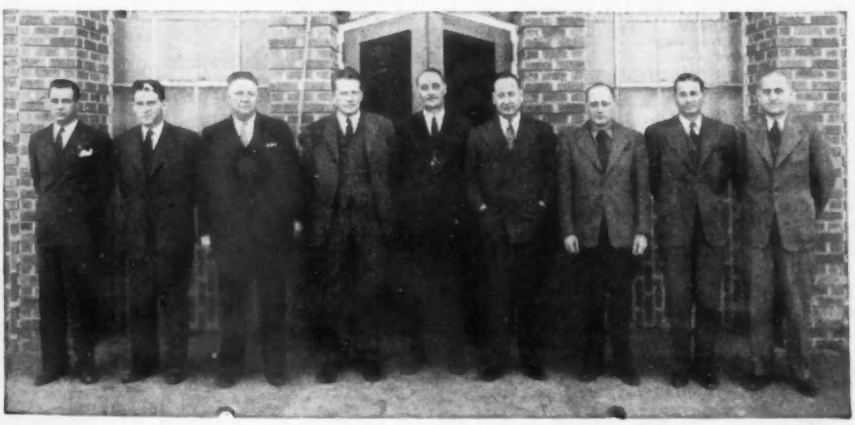
Flanagan, the former vice president and general manager, succeeds the late T. J. Flanagan. The two men were not related.

Howard F. Stover was elevated from secretary - treasurer to executive vice president and secretary-treasurer. Thomas H. Flanagan, son of the late president, was named vice president in charge of purchasing. He was formerly purchasing agent.

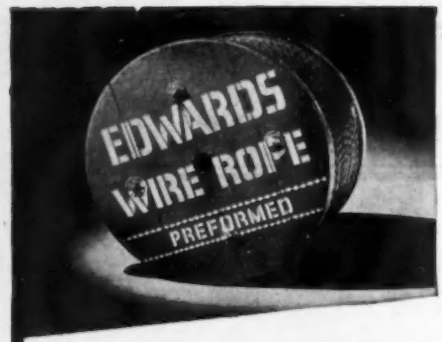
☆

R. O. PERRY, formerly advertising manager of Emsco Derrick & Equipment Company, has been appointed senior account executive of Russel P. Ostrander Advertising Agency of Los Angeles.

Pemco-Merco Mid-Continent Representatives Meet



The annual conference of service engineers covering the Tulsa territory for Pittsburgh Equitable Meter Company-Merco Nordstrom Valve Company was held in Tulsa, December 12, 13 and 14. Sessions were presided over by M. D. Gilbert, District Manager. Those attending were, left to right: W. A. Adkins, L. R. Van Arsdale, A. I. Shurtleff, R. R. Bush, F. A. Arneson, W. R. McLaughlin, J. L. Cottrell, D. D. Collins, M. D. Gilbert.



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FACTORY
So. San Francisco, Calif.

E. H. EDWARDS COMPANY

Houston Oil Field Firm To Manufacture Shells

Houston Oil Field Material Company, Houston, Texas, manufacturers of oil field supplies, has been awarded a government contract to make artillery shells, and plans are under way to remodel buildings to house machinery and other equipment necessary to produce the shells. The contract is reported to be for several million dollars.

"Supply Row" Restricted To Firms and Employes

Supply Row is a Houston industrial and residential project restricted to oil field supply and equipment companies.

The development is on a wooded tract of 60 acres near Hughes Tool Company and other important oil field tool and equipment manufacturers. An adjacent tract has been set aside for apartment and residential development for employes of supply and equipment concerns in Supply Row. Industrial sites are accessible to two railroad right-of-ways.

The idea for Supply Row was conceived by Texsteam Company, which was the first concern to locate in the new project. Houston Oil Field Material Company is constructing new offices and warehouses in Supply Row and other supply companies are expected to locate there as building permits become available.

Restrictions in Supply Row include uniform modern architecture, of the projected residential development, and of industrial buildings. Plans call for a central air conditioning and heating plant, and a recreation center with swimming pool and playgrounds.

Wickwire Spencer Steel Appoints Sales Manager

The Wickwire Spencer Steel Company has announced appointment of A. S. Rairden as sales manager of the company's Wire Rope Division.

Rairden, well known in the steel industry, was previously with Carnegie Illinois, American Steel and Wire, and American Chain and Cable. He was also associated with Wickwire Spencer for 10 years as sales engineer and wire rope sales manager.

☆

ROLF ENGLEMAN, district geologist for The Carter Oil Company at Lander, Wyoming, has been named district geologist for the company's central division with headquarters at Oklahoma City. He succeeds S. Morse Willis, who resigned February 1 to enter private practice as a consulting geologist.

Advertisers' Index

* Indicates detailed information on products and services included in 1943-1944 edition of Composite Catalog of Oil Field and Pipe-Line Equipment.

*Air Reduction Sales Co. 13
Alice Pipe & Supply Co. 68
*Alten's Foundry & Machine Works 75
*American Cast Iron Pipe Co. 60
*American Locomotive Co. 10
American Manufacturing Co. 15
*American Roller Bearing Co. 64
*American Sand-Banum Co. 80
*Baker Oil Tools, Inc. 1
*Baldwin-Duckworth Division Chain Belt Co. 65
Wm. M. Barret, Inc. 78
Beech Aircraft Corp. 6
*Bethlehem Steel Co. 16
*Black, Sivalls & Bryson, Inc. 5
Braniff Airways, Inc. 59
*The Buda Co. II Cover
*Cameron Iron Works, Inc. 54
*Caterpillar Tractor Co. 22
*Chain Belt Co. III Cover
City National Bank (Houston) 53
*Clarke Bros. Co. Insert, 40-41
Dan L. Clark Drilling Co. 60
*Continental Motors Corp. 17
Crane Co. 47
*Cummins Engine Co. 37
*Durbin-Durco 52
The Eagle-Picher Lead Co. 66
*Economy Electric Lantern Co. 52
*E. H. Edwards Co. 80
*The Edwin H. Filter Co. 50
Ft. Worth Laboratories 78
The Four Wheel Drive Auto Co. 51
*Franks Manufacturing Corp. 24
*The Garlock Packing Co. 67
Gulf Engineering Co. 78
Halliburton Oil Well Cementing Co. IV Cover
*Hazard Wire Rope Division American Chain & Cable Co. III Cover
Houston Laboratories 78
*Hughes Tool Co. I Cover
*Jensen Brothers Manufacturing Co. 58
John Jobe Co. 69
*Justrite Manufacturing Co. 74
*Lamtex Equipment Corp. 78
*Lane-Wells Company 39
*Larkin Packer Co. 20 and 63
Leyman Manufacturing Corp. 70
A. M. Lockett & Co. 70
*The Lufkin Foundry & Machine Co. 11
The Lufkin Rule Co. 76
The Mayo Hotel 60
*McEvoy Co. 8-9
*Mission Manufacturing Co. 57
Murphy Diesel Co. 71
*The National Supply Co. 34-35
*Oil City Brass Works 78
*Patterson-Ballagh Corp. 49
*Pelican Well Tool & Supply Co. 69
*Penberthy Injector Co. 48
Petroleum Electric Power Association 2
*Rector Well Equipment Co. 50
*Reed Roller Bit Co. 43
*Schlumberger Well Surveying Corp. 33
*Southern Mill & Manufacturing Co. 12
*Spang & Co. 72
Standard Oil Company of California 4
*Standco Brake Lining Co. 78
Texas Pipe & Supply Co. 73
*Tretolite Co. 7
Trading Post Section 77
*Universal Engineering Co. 75
B. M. Vaughn 60
Walter Motor Truck Co. 14
Western Geophysical Co. 74
*J. H. Williams & Co. 67
*Wilson Manufacturing Co. 3
The Youngstown Sheet & Tube Co. 18

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